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1904/05

College of Arts, Philosophy and Science

of the

Ohio State University.

Announcement for 1905.

University Bulletin.

Series 8. Number 19

DAYS AND DATES.

1904.

Entrance Examinations, 8 A. M., Monday and Tuesday, June 20, 21.

Entrance Examinations, 8 A. M., Monday and Tuesday, September 19, 20.

First term begins — Registration Day — Tuesday, September 20.

President's Annual Address, 11 A. M., Friday, September 23.

Latest Date of Admission to candidacy for a degree at the Commencement
of June, 1905, October 1, 1904.

First term ends Wednesday, December 21.

1905.

Second term begins — Registration Day — Tuesday, January 3.

Second term ends Friday, March 31.

Third term begins — Registration Day — Wednesday, April 5.

Final Examinations, Friday to Thursday, June 9-15.

Entrance Examinations, 8 A. M., Monday and Tuesday, June 19, 20.

Commencement, Wednesday, June 21.

ORGANIZATION.

The Ohio State University, located in Columbus two miles north of the Union station, is a part of the public educational facilities maintained by the State. It comprises six colleges:

The College of Agriculture and Domestic Science,

The College of Arts, Philosophy, and Science.

The College of Engineering,

The College of Law,

The College of Pharmacy,

The College of Veterinary Medicine.

This bulletin of announcements is devoted exclusively to the work of the College of Arts, Philosophy, and Science.

COLUMBUS:

PUBLISHED BY THE UNIVERSITY,

Entered at the Postoffice, Columbus, Ohio, as second-class matter.

UNIVERSITY OF ILLINOIS
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The College of Arts, Philosophy and Science

This College comprises those courses of study that are designed to furnish a liberal education in the languages and literatures, the sciences, mathematics, philosophy, history, politics, administration, economics, sociology, commerce, and educational theory, as distinguished from the technical and professional courses which constitute the work of the other colleges.

THE DEPARTMENTS.

The College of Arts, Philosophy, and Science includes the following departments: American History and Political Science, Anatomy and Physiology, Astronomy, Bacteriology, Botany, Chemistry, Economics and Sociology, Education, English, European History, Geology, Germanic Languages and Literatures, Greek Language and Literature, Latin Language and Literature, Mathematics, Metallurgy and Mineralogy, Military Science and Tactics, Philosophy, Physical Education, Physics, Romance Languages and Literatures, Zoology and Entomology. The following departments of other Colleges of the University offer a limited amount of work as elective studies in the College of Arts, Philosophy and Science: Civil Engineering, Domestic Science, Drawing, Electrical Engineering, Law, Mechanical Engineering.

THE GRADUATE SCHOOL.

The graduate instruction given in the College of Arts, Philosophy and Science is organized in a Graduate School. A special bulletin describing the organization, admission requirements, and work of the Graduate School may be obtained on application to the Executive Office.

FACULTY AND INSTRUCTORS OF THE COLLEGE OF ARTS, PHILOSOPHY AND SCIENCE.

REV. WILLIAM OXLEY THOMPSON, D. D., President of the University.

JOSEPH VILLIERS DENNEY, B. A., Dean and Professor of English.

WILLIAM HENRY SCOTT, LL. D., Professor of Philosophy.

SIDNEY AUGUSTUS NORTON, LL. D., Emeritus Professor of Chemistry.

SAMUEL CARROLL DERBY, M. A., Professor of the Latin Language and Literature.

JOSIAH RENICK SMITH, M. A., Professor of the Greek Language and Literature.

BENJAMIN FRANKLIN THOMAS, Ph. D., Professor of Physics, and State Sealer of Weights and Measures.

GEORGE WELLS KNIGHT, Ph. D., Professor of American History and Political Science.

ROSSER DANIEL BOHANNAN, B. Sc., C. E., E. M., Professor of Mathematics.

ALBERT MARTIN BLEILE, M. D., Professor of Anatomy and Physiology.

WILLIAM ASHBROOK KELLERMAN, Ph. D., Professor of Botany.

BENJAMIN LESTER BOWEN, Ph. D., Professor of Romance Languages and Literatures.

ALLEN CAMPBELL BARROWS, D. D., Professor of English.

WILLIAM MCPHERSON, Ph. D., Professor of Chemistry.

HERBERT OSBORN, M. Sc., Professor of Zoology and Entomology.

HENRY CURWEN LORD, B. Sc., Professor of Astronomy, and Director of the Emerson McMillin Observatory.

GEORGE L. CONVERSE, Captain (retired), U. S. A., Professor of Military Science and Tactics.

CHARLES SMITH PROSSER, M. Sc., Professor of Geology.

JOHN ADAMS BOWNOCKER, D. Sc., Professor of Inorganic Geology, and Curator of the Museum.

ALFRED DODGE COLE, M. A., Professor of Physics, and Secretary of the Faculty.

WILBUR HENRY SIEBERT, M. A., Professor of European History.

LEWIS ADDISON RHOADES, Ph. D., Professor of Germanic Languages and Literatures.

JAMES EDWIN HAGERTY, Ph. D., Professor of Economics and Sociology.

CHARLES BRADFIELD MORREY, M. D., Professor of Bacteriology.

DAVID R. MAJOR, Ph. D., Professor of Education.

OLIVE B. JONES, University Librarian.

GEORGE WASHINGTON MCCOARD, M. A., Associate Professor of Mathematics.

ARTHUR WINFRED HODGMAN, Ph. D., Associate Professor of the Classic Languages.

MAUD W. MARTIN, Director of Physical Education for Women.

JAMES ELLSWORTH BOYD, M. Sc., Associate Professor of Mathematics.

JOSEPH RUSSELL TAYLOR, M. A., Associate Professor of English.

CHARLES A. BRUCE, B. A., Associate Professor of Romance Languages.

WILLIAM EDWARDS HENDERSON, Ph. D., Associate Professor of Chemistry.

CHARLES WILLIAM FOULK, B. A., Associate Professor of Chemistry.

JOHN H. SCHAFFNER, M. Sc., Associate Professor of Botany.

JAMES STEWART HINE, B. Sc., Associate Professor of Entomology.
FRANCIS LEROY LANDACRE, B. A., Associate Professor of Zoology.
WALLACE STEDMAN ELDEN, Ph. D., Associate Professor of the Classic Languages.

WILLIAM LUCIUS GRAVES, M. A., Assistant Professor of English.
CHARLES LINCOLN ARNOLD, M. Sc., Assistant Professor of Mathematics.
KARL DALE SWARTZEL, M. Sc., Assistant Professor of Mathematics.
GEORGE H. MCKNIGHT, Ph. D., Assistant Professor of English.
FREDERICK EDWARD KESTER, M. A., Assistant Professor of Physics.
THOMAS HARVEY HAINES, Ph. D., Assistant Professor of Philosophy.
HARRY WALDO KUHN, Ph. D., Assistant Professor of Mathematics.
EDWIN F. CODDINGTON, Ph. D., Assistant Professor of Mathematics.
ALONZO HUBERT TUTTLE, B. A., Assistant Professor of American History.
EDGAR S. INGRAHAM, Ph. D., Assistant Professor of Romance Languages.
ROBERT F. EARHART, Ph. D., Assistant Professor of Physics.
GEORGE B. VILES, Ph. D., Assistant Professor of Germanic Languages and Literatures.

ARTHUR ERNEST DAVIES, M. A., Ph. D., Instructor in Philosophy.
BERTHOLD A. EISENLOHR, B. Ph., Instructor in Germanic Languages.
DON CARLOS HUDDLESON, G. Ph., Instructor in Physical Education.
MELVIN DRESBACH, M. Sc., Instructor in Anatomy and Physiology.
SAMUEL EUGENE RASOR, B. Sc., M. A., Instructor in Mathematics.
EDGAR HOLMES MCNEAL, Ph. D., Instructor in European History.
HENRY R. SPENCER, M. A., Instructor in American History and Political Science.

MARION WILSON MUMMA, B. Sc., Assistant in Chemistry.
CATHERINE E. ANDREWS, M. A., B. Sc., Assistant in Chemistry.
RAYMOND JESSE SEYMOUR, B. Sc., Assistant in Anatomy and Physiology.
BENJAMIN FRANKLIN MAAG, M. Sc., Assistant in Astronomy.
HARLAN H. YORK, Assistant in Botany.

ADMISSION.

The University is open on equal terms to both sexes.

Applicants for admission to the College of Arts, Philosophy and Science must be at least 16 years of age. Each must be provided with credentials of scholarship from the last institution with which he has been connected and with a certificate of good moral character.

There are two modes of admission to the College of Arts, Philosophy and Science — by examination and by certificate.

ENTRANCE EXAMINATIONS.

The entrance examinations for 1904 will be held on Monday and Tues-

day, June 20 and 21, and on Monday and Tuesday, September 19 and 20. A part of the examinations may be taken in June and the remainder in September. *All applicants for admission who are not graduates of "accredited" or "recognized" schools must take examinations for admission.*

CERTIFICATES.

Applicants for admission may be admitted on presentation of properly indorsed certificates from secondary schools which have been "accredited" or "recognized" by the University.

(a) ACCREDITED SCHOOLS OF OHIO.

All *graduates* of the following schools will be admitted by certificate and without examination, provided the required entrance branches are covered by their certificates.

Until June, 1906:

Ashtabula, Bryan, Cambridge, Chillicothe, Circleville, Clyde, Collingwood, Coshocton, Dayton, East Cleveland, East Liverpool, Elyria, Fostoria, Fremont, Gallipolis, Glenville, Grand River Institute, Greenville, Hamilton, Hillsboro, Ironton, Jackson, Jefferson, Lakeside, Lakewood, Lancaster, Lockland, Logan, London, Madisonville, Mansfield, Martins Ferry, Marysville, Medina, Miamisburg, Nelsonville, Newark, New Lyme Institute, New Philadelphia, Piqua, Portsmouth, Sandusky, Springfield, Toledo, Troy, Urbana, Washington C. H., Wellington, Wellsville, Wooster, Wyoming, Xenia, Zanesville.

Until June, 1907:

Akron, Ashland, Bellefontaine, Canton, Chardon, Cincinnati—Hughes, Woodward; Cleveland—Central, East, Lincoln, South, West; Delaware, Findlay, Galion, Georgetown, Lima, Marion, Mechanicsburg, Mt. Vernon, New London, Norwalk, Painesville, Salem, Sidney, St. Marys, Tiffin, Van Wert, Warren, Willoughby, Youngstown.

(b) RECOGNIZED SCHOOLS OF OHIO.

All graduates of the following schools will be admitted by certificate and without examination in the entrance branches covered by their certificates, but will be subject to examination in the requirements for admission not covered by their certificates.

Until June, 1905:

Alliance, Ashley, Carey, Chicago, Clarington, College Corner, Columbus, Columbus Grove, DeGraff, Deshler, East Palestine, Fort Recovery, Garrettsville, Genoa, Gibsonburg, Glouster, Harrison, Jamestown, Johnstown, Kinsman, Leipsic, LeRoy, Lexington, Lisbon, McArthur, Milan, Milford, Osborn, Perrysburg, Pleasant Ridge, Quaker City, Richwood, Rockford, Salineville, Solon, Stryker, Utica, Wadsworth.

Until June, 1906:

Athens, Barnesville, Bellaire, Bethel Township, Miami County, Caldwell, Canal Dover, Canal Winchester, Chagrin Falls, Corning, Covington, Euclid, Germantown, Gnadenhutten, Groveport, Kingsville, Lebanon, Lorain, Napoleon, New Vienna, North Baltimore, Norwood, Oberlin, Olive Branch, Orrville, Plain City, Pomeroy, Port Clinton, O. S. and S. O. Home, Shelby, Tippecanoe City, Uhrichsville, Wauseon, Woodsfield.

Until June, 1907:

Bellevue, Celina, Clintonville, Conneaut, Cuyahoga Falls, Dennison, Granville, Kirtland, Madison, Massillon, Mt. Sterling, New Bremen, Niles, Ottawa, Pataskala, Ravenna, Ripley, Spencerville, Upper Sandusky, Wapakoneta, Worthington.

(c) ACCREDITED SCHOOLS OF OTHER STATES.

All *graduates* of the following schools will be admitted by certificate, and without examination, provided the required entrance branches are covered by their certificates.

Until June, 1905:

MICHIGAN: Ann Arbor, Adrian, Alpena, Bay City, Battle Creek, Calumet, Coldwater; Detroit—Central, Eastern, Detroit University School, Detroit Home and Day School; Grand Haven, Grand Rapids, Hancock, Iron Mountain, Kalamazoo, Lansing, Menominee, Marquette, Muskegon, Mt. Clemens, Monroe, Marshall; Saginaw, West Side; St. Joseph; Saginaw, East Side; Traverse City, Ypsilanti.

INDIANA: Fort Wayne, Frankfort, Howe Military School, Indianapolis Shortridge; Indianapolis Manual Training; Michigan City, Rensselaer.

ILLINOIS: Aurora, East; Aurora, West; Bloomington; Chicago—Austin, Calumet, Englewood, Hyde Park, Jefferson, John Marshall, Joseph Medill, Lake, Lake View, North West Division, Robert Waller, South Chicago, South Division, William McKinley; Clyde, DeKalb, Dixon South, Elgin, Evanston, Harvey, Joliet, La Grange, Moline, Oak Park, Ottawa, Peoria, Pontiac, Princeton, Rockford, Rock Island, Sterling.

IOWA: Boone, Cedar Rapids, Council Bluffs, Davenport, West Des Moines, Fort Dodge, Grinnell, Le Mars, Marshalltown, Ottumwa, Sioux City.

WISCONSIN: Ashland, Chippewa, Eau Clair, Fort Atkinson; Milwaukee, East Division; Milwaukee, West Division; Milwaukee, South Division; Milwaukee, Downer Seminary; Oshkosh, Racine, Ryan, Janesville, Kenosha, La Cross, Marinette, Marshfield, Merrill, Sheboygan, Sparta, Stevens Point, Superior, Blaine; Superior, Nelson Dewey; Waukesha, Whitewater.

MINNESOTA: Duluth; Minneapolis—Central, East Side; St. Paul—Central, Humboldt, Cleveland.

MISSOURI: Blee Military Academy, Columbia; Kansas City; Central, Manual Training, Westport; Kirkwood; St. Louis—Central, William McKinley, Washington University Training School.

NEBRASKA: Beatrice, Kearney, Lincoln Academy, Omaha.

COLORADO: Colorado Springs, Cripple Creek, Greeley, Kenyon City, La Junta, Leadville, Pueblo No. 1, Pueblo No. 20, Trinidad.

Certificates will not be accepted for admission to the College of Arts, Philosophy and Science from High Schools that are not named in the above lists.

Certificates from "accredited" and "recognized" schools will be accepted in lieu of examination only under the following conditions:

(a) The certificate must state in detail the studies pursued, the textbooks used, the amount of work done in each study, the amount of time devoted to it, and the fact that the applicant has successfully passed in the work.

(b) The certificate will be accepted for such studies only, or such part of each, as it shall show to have been satisfactorily accomplished.

(c) Every such certificate must be accompanied with a diploma or must show that the candidate has been graduated from the school from which he comes. *Blank certificates may be obtained by addressing the EXECUTIVE OFFICE, OHIO STATE UNIVERSITY, COLUMBUS.* Certificates should be filled out and returned to the University as early as possible after the close of the schools in June, and in any event not later than September 1.

REQUIREMENTS FOR ADMISSION.

The following is a tabular statement of the subjects accepted for admission to the College of Arts, Philosophy and Science. Fifteen units are required for unconditional admission. A unit is a course of study covering a school year of not less than thirty-five weeks with four or five periods of at least forty-five minutes each per week. No one under 21 years of age* will be admitted on less than 13 units. For *unconditional* admission the applicant must be prepared to offer:

A. Two units chosen from the following:

(1) English Composition and Rhetoric..... 1 unit.

* A person twenty-one years of age, or over, who desires to pursue a special line of work and does not desire to become a candidate for a degree, may be admitted by vote of the Executive Committee to such classes as he is qualified to enter; provided, that if he afterwards becomes a candidate for a degree he must pass the requirements for admission at least one year before the degree is conferred. See "Admission to Special Studies."

- (2) English Classics 1 unit.
- (3) English Literature 1 unit.
- B. Two units chosen from the following:
 - (4) Civil Government..... $\frac{1}{2}$ unit.
 - (5) United States History $\frac{1}{2}$ unit.
 - (6) General History 1 unit.
 - (7) Greek and Roman History $\frac{1}{2}$ unit.
 - (8) English History $\frac{1}{2}$ unit.
- C. Three units as follows:
 - (10) Plane and Solid Geometry..... } 3 units.
 - (9) Algebra }
- D. Two units chosen from the following, including Physics:
 - (11) Physics 1 unit.
 - (12) Physical Geography $\frac{1}{2}$ unit.
 - (13) Botany $\frac{1}{2}$ unit.
 - (14) Chemistry 1 unit.
 - (15) Physiology $\frac{1}{2}$ unit.
 - (16) Zoology $\frac{1}{2}$ unit.
 - (17) Geology $\frac{1}{2}$ unit.
 - (18) Astronomy $\frac{1}{2}$ unit.
- E. Six units chosen from the following; or two *extra* units, chosen from the preceding groups, and four units from the following:
 - (19) Latin 2 to 4 units.
 - (20) Greek 2 to 4 units.
 - (21) German 2 to 4 units.
 - (22) French 2 to 4 units.
 - (23) Spanish 2 to 4 units.

The extent and character of the work required in each subject mentioned above is as follows:

(a) THE ENGLISH GROUP.

Two units are required in this group. An applicant presenting one unit in this group will be admitted *conditionally*, if his arrearage in all of the groups does not exceed two units. All arrearages must be made good within two years after admission.

(1) *English Composition and Rhetoric. One Unit.* Each applicant must be able to write clear and correct English, and no applicant will be accepted in English whose work is seriously defective in spelling, punctuation, grammar, and paragraph structure. The proper preparation for this part of the requirement is practice in composition, through the four preparatory years, with correction of themes by the teacher and revision by the pupil. Subjects for themes should not be taken exclusively from literature; a large share of the subjects should be based upon the pupil's

observation and experience. Practice should be afforded in writing narrative, description, exposition and argumentation. Applicants should be familiar with those principles of Rhetoric which are most helpful in elementary composition; viz., the principles of sentence structure, outlining, paragraphing, and choice of words. The amount and kind of work required is indicated in Scott and Denney's Composition-Rhetoric.

(2) *English Classics. One Unit.* The following books, or *equivalents*, should be read with sufficient care to insure a knowledge of their story-plot, or argument, their chief incidents, and their principal characters; so that pupils may discuss them intelligently. Four or five of these books should be examined closely in class with reference to structure and leading characteristics of style. The list (until 1905) is as follows: Shakespeare's *Merchant of Venice*, *Julius Caesar*, and *Macbeth*; Milton's *Lycidas*, *Comus*, *L'Allegro*, and *Il Penseroso*; Burke's *Conciliation with the Colonies*; Macaulay's *Essays on Milton and Addison*; The Sir Roger de Coverly Papers in *The Spectator*; Goldsmith's *The Vicar of Wakefield*; Coleridge's *The Ancient Mariner*; Scott's *Ivanhoe*; Carlyle's *Essay on Burns*; Tennyson's *The Princess*; Lowell's *The Vision of Sir Launfal*; George Eliot's *Silas Marner*.

(3) *English Literature. One Unit.* A good knowledge of the leading facts in the history of English Literature, as given in Scudder's English Literature, Johnson's History of English and American Literature or the Introductions by Pancoast, Painter, Halleck, or Newcomer; together with the reading of representative works of literature. This may be offered in lieu of subject (2), or as one of the *extra* units of group (E).

(b) THE HISTORY GROUP.

Two units are required in this group. An applicant presenting one unit in this group will be admitted *conditionally*, if his arrearage in all of the groups does not exceed two units. All arrearages must be made good within two years after admission. Preparation in excess of two units in this group may be offered in lieu of the *extra* units of group (E).

(4) *Civil Government. One-half Unit.* A good knowledge of the origin, principles, forms and powers of the national, state and local governments is expected. Fiske's Civil Government, with a special study of the state from which the student comes, may serve to indicate the amount and kind of knowledge sought. No credit upon certificate will be given for Civil Government where it has been studied merely as incidental to, and as a part of, the work in United States history.

(5) *United States History. One-half Unit.* A good knowledge of the main facts and features of American history, especially of the period since 1750, is expected. Johnson's High School History of the United States, or McLaughlin's History of the American Nation, or Montgom-

ery's Students' American History will serve to show the kind and amount of work sought. No credit upon certificate will be accorded in this subject for work done below the ninth grade.

(6) *General History. One unit.* Adams's European History, Myers' General History, or an equivalent.

(7) *Greek and Roman History. One-half unit.* Botsford's History of Greece and History of Rome, or equivalents.

(8) *English History. One-half unit.* Montgomery's Leading Facts of English History, or equivalent.

(c) THE MATHEMATICS GROUP.

All of the Mathematics group is required. It counts three units. An applicant presenting *two* units in this group will be admitted *conditionally*, if his arrearage in all of the groups does not exceed two units. All arrearages must be made good within two years after admission.

(9) *Algebra.* Taylor's Elements of Algebra or an equivalent.

Special attention should be given to the four fundamental operations (single and system), factoring, highest common factor, lowest common multiple, fractions and fractional equations, involution, evolution, surds, complex quantities, quadratic equations, solved by factoring, by completing the square and the *general formula*. In the last year of the high school a thorough review of the work just mentioned, and irrational equations, simultaneous quadratic equations, higher equations solvable by factoring, ratio, proportion, progressions, theory of exponents, binomial theorem for positive integral exponents and use of five-place tables of logarithms.

(10) *Geometry.* Venable, White, Wells, Wentworth, Beman and Smith, or an equivalent. Plane geometry with solution of originals. Solid and spherical geometry with solution of originals given in one of the text-books named above. Instead of solid and spherical geometry, the applicant may substitute *Plane Trigonometry*, as given in Lyman & Goddard's *Plane Trigonometry*.

(d) THE SCIENCE GROUP.

Two units are required in this group, including physics. An applicant presenting one unit in this group will be admitted conditionally, if his arrearage in all of the groups does not exceed two units. All arrearages must be made good within two years after admission. Preparation in excess of two units in this group may be offered in lieu of the *extra* units of group (E).

(11) *Physics. One unit.* Gage's Elements, Carhart and Chute, Avery, Appleton. One full year of daily work is necessary to meet the requirement in this subject. Laboratory training, to accompany the work of the text-book, is strongly recommended.

(12) *Physical Geography. One-half unit.* Tarr's, Davis' or Gilbert and Brigham's Physical Geography.

(13) *Botany. One-half unit.* Kellerman's Elementary Botany and Spring Flora, or an equivalent. The course should be divided between spring and fall.

(14) *Chemistry. One unit.* Remsen's Introduction to the Study of Chemistry, or its equivalent. For laboratory work, McPherson's Laboratory Exercises, arranged to accompany Remsen's Chemistry. The course should consist of at least three recitations and four hour's laboratory work weekly. No credit in chemistry will be allowed for preparatory work less thorough than that outlined above.

(15) *Physiology. One-half unit.* Martin's Human Body (brief course). No credit will be accorded in this subject for work done below the ninth grade.

(16) *Zoology. One-half unit.* Jordan and Kellogg's "Animal Life;" Kellogg's "Elementary Zoology;" Davenport's "Introduction;" or equivalents, with laboratory work or field work.

(17) *Geology. One-half unit.* Brigham's, Dana and Rice's (revised), or Tarr's may be used as texts. The recitations should be supplemented by study of the geological phenomena and formations found in the vicinity of the school.

(18) *Astronomy. One-half unit.* Young's Lessons in Astronomy, Comstock's Textbook in Astronomy or an equivalent.

(e) THE FOREIGN LANGUAGE GROUP.

Six units are required in this group; or two *extra* units from the preceding groups, and *four* units from this. A deficiency of *two* units is allowed in this group if the total arrearage in all of the groups does not exceed *two* units. All arrearages must be made good within two years after admission.

(19) *Latin. Two to four units* may be offered as follows: *Two units* — Pronunciation (Roman method); Grammar (an exact knowledge of the inflections); Caesar, the first four books of the *De bello Gallico*, and Prose Composition. *Third unit* — Cicero, six orations of Cicero, including *Pro Lego Manilia*, and Prose Composition, Daniell, or Collar, or Jones, or Dodge and Tuttle. *Fourth unit* — Virgil, the first six books of the *Aeneid* with Prosody. Latin cannot be continued as a university study unless at least three units are offered for admission.

(20) *Greek. Two to four units* may be offered as follows: *Two units* — Grammar (Goodwin's preferred) and Prose Composition; or the first 100 lessons in White's Beginner's Greek Book. Reading: The first three books of Xenophon's *Anabasis*. At least two years should be devoted to this work. A *third* unit will be allowed for preparation in the

fourth, fifth and sixth books of the Anabasis and three books of Homer's Iliad, and a *fourth* unit for additional reading in Greek.

(21) *German.* *Two to four* units may be offered as follows: *Two units*—The pupil should be able to read at sight, and to translate, if called upon, by way of proving his ability to read, a passage of very easy dialogue or narrative prose, help being given upon unusual words and constructions; to put into German short English sentences taken from the language of every-day life or based upon the text given for translation, and to answer questions upon the rudiments of grammar as defined below. During the first year the work should comprise: (1) Careful drill upon pronunciation; (2) the memorizing and frequent repetition of easy colloquial sentences; (3) drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs, also upon the use of the more common prepositions, the simpler uses of the model auxiliaries, and the elementary rules of syntax and word-order; (4) abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (5) the reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading lesson (the teacher giving the English), and in the reproduction from memory of sentences previously read. During the second year the work should comprise: (1) The reading of from 150 to 200 pages of literature in the form of easy stories and plays; (2) accompanying practice, as before, in the translation into German of easy variations upon the matter read, and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; (3) continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his knowledge with facility in the formation of sentences, and, secondly, to state his knowledge correctly in the technical language of grammar.

Four units. The applicant must offer, in addition to the above, two additional years of instruction in German, including a review of the essentials of grammar. The rapid reading of at least 200 pages of prose; for example, the following: Heyse's *L'Arrabiata*, Riehl's *Der Fluch der Schönheit*, Hauff's *Lichtenstein*. The outlines of German literature should be mastered. In connection with this about 200 pages of German ballads and lyrics should be read. Some book like v. Klenze's *Deutsche Gedichte* might be used. A considerable portion of the prose and poetry should be read extemporaneously. About 50 pages in some prose composition should be translated. Text-books suggested are: v. Jagemann's, Poll's or Harris' *Prose Composition*. The work in composition should be

carried on as far as possible in German. All exercises should be had in this entire course, as far as they may be used without interfering with the thoroughness of the work.

(22) *French. Two to four units* may be offered as follows: *Two units* — Applicants should be able to pronounce French accurately, to read at sight easy French prose, to put into French simple English sentences, taken from the language of every-day life, or based upon a portion of the French text read, and to answer questions on the rudiments of the grammar as defined below. Two years should be given to this preparation. During the first year the work should comprise: (1) Careful drill in pronunciation; (2) the rudiments of grammar, including the inflection of the regular and the more common irregular verbs, the plural of nouns, the inflection of adjectives, participles and pronouns; the use of personal pronouns, common adverbs, prepositions and conjunctions; the order of words in the sentence, and the elementary rules of syntax; (3) abundant, easy exercises, designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (4) the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice in translating into French easy variations of the sentences read (the teacher giving the English), and in reproducing from memory sentences previously read; (5) writing French from dictation. During the second year the work should comprise: (1) The reading of from 250 to 400 pages of easy modern (nineteenth century) prose in the form of stories, plays or historical or biographical sketches; (2) constant practice, as in the previous year, in translating into French easy variations upon the texts read; (3) frequent abstracts, sometimes oral and sometimes written, of portions of the text already read; (4) writing French from dictation; (5) continued drill upon the rudiments of grammar, with constant application in the construction of sentences; (6) mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

Four units. In addition to the above, the applicant should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult French not earlier than that of the seventeenth century; to write in French a short essay on some simple subject connected with the works read; to put into French a passage of easy English prose and carry on a simple conversation in French.

(23) *Spanish. Two to four units* may be offered as follows: *Two units.* Applicants should be able to pronounce Spanish accurately, to read at sight easy Spanish prose, to put into Spanish simple English sentences taken from the language of every-day life or based upon a portion of the Spanish text read, and to answer questions on the essen-

tials of the grammar. Two years should be given to this preparation, the first year being spent mainly on the grammar with easy reading and oral practice; the second devoted to reading good modern Spanish, with grammatical analysis and exercises in writing. The texts read should be chiefly narrative and conversational prose, including one or more prose dramas of the present age.

Four units. In addition to the above, the applicant should be able to read at sight, with the help of a vocabulary of special or technical expressions, difficult Spanish, whether prose or poetry; to write in Spanish a short essay on some simple subject connected with the works read, which shall show a thorough knowledge of syntax; to put into Spanish a passage of easy English prose, and to carry on a simple conversation in Spanish.

ADMISSION TO SPECIAL STUDIES

Students who desire to pursue special lines of work and do not desire to become candidates for degrees, will be admitted on the following conditions:

1. The regular entrance requirements must be satisfied.
2. But applicants who are not less than twenty-one years of age after obtaining credit for the common English branches and for such other subjects as may be necessary to qualify them for the classes that they wish to enter, may, on the presentation of satisfactory reasons, be admitted to any class in the College; provided, that if any student who has been admitted on these conditions afterwards becomes a candidate for a degree, he shall pass the omitted entrance examinations at least twelve months before the degree is conferred.
3. On entering the College, students desiring to pursue special work are required to lay before the Executive Committee, for approval or modification, a written statement of the end they have in view, the studies proposed for the attainment of that end, and the probable period of attendance. Such students will be held as strictly to their accepted schemes of work as are the regular undergraduates to their courses of study.
4. Permission to enter as special undergraduates will be refused to all who fail to give satisfactory evidence of definiteness of purpose, and will be withdrawn whenever the conditions on which it was granted cease to exist.

ADMISSION TO ADVANCED STANDING

1. Applicants who do not come from some other university or college must first obtain admission to the College in the manner already described. They will then be examined on the undergraduate studies for which they ask credits.

2. Applicants who come from the collegiate department of an approved college, and who bring explicit and official certificates describing their course of study and scholarship, and also certificates of honorable dismissal, will be admitted without examination except such as may be necessary to determine what credit they are to receive here for work done in the college from which they come.

ADMISSION TO GRADUATE WORK

A special bulletin devoted exclusively to the Graduate School may be obtained on application to the Executive Office.

REQUIREMENTS FOR GRADUATION

UNDERGRADUATE COURSES OF STUDY

The work of the College of Arts, Philosophy, and Science is organized on the group-elective system. Several of the groups correspond in their chief studies and leading aims to the "courses" formerly offered, but with much greater flexibility and much freer opportunities for election. Many other "courses" having equally specific aims are also provided in the groups. The groups, so far as at present arranged, number fourteen. This number will be increased as reasonable demand may arise for new groups. The characteristic features of each group may be judged from its name which is made up of the names of the chief studies of the group. The groups at present recommended are given on pages 18-21.

About one-third of every student's curriculum is prescribed. Each student is required to lay sufficiently broad foundations, during the first two years, in English, in two other languages to be chosen by himself, in mathematics and one science, or in two sciences to be chosen by himself, and in history, economics, English, or philosophy. The remaining two-thirds of each student's work is elective; but in order to insure substantial results in the studies thus freely chosen, the student is required to continue two of his first-year studies (any two) through the second year, one of his second-year studies (any one) through the third year, and one of his third-year studies (any one) through the fourth year. In order to guard against the danger of too narrow or too wide a range of work, a maximum and a minimum number of departments is fixed in which the student is allowed to work during any one year. In the first and second years the number of departments thus fixed is four or five; in the third and fourth years the number is three or four.

All members of the Faculty, but the Dean and the members of the

¹ Arts or Classical, Latin-Philosophy, Modern Language Philosophy, English Philosophy, General Science, Commerce and Administration, Education, Preparatory to Law, Preparatory to Medicine, Preparatory to Journalism.

Executive Committee especially, are always glad to advise with the students respecting choice of studies.

REQUIREMENTS

On satisfactory completion of 180 term hours under the restrictions prescribed below, the student will be recommended for the Degree of Bachelor of Arts.

The 180 term hours must include the following, amounting to 57 term hours:

- (a) English 1. (2-2-2) 6 term hours.
- (b) Two of the following: (8-8-8) 24 term hours.
 - Greek 1 or 7, 8, 9; Latin 1, 2, 3;
 - French 1 or 2; German 1 or 4; Spanish 1 or 2.
- (c) Mathematics 31, 32, 33 and 24. (6-6-6) 18 term hours; or
Two of the following: (6-6-6) 18 term hours.
 - Mathematics 21, 22, 23; Physics 11 or 2;
 - Chemistry 1; Botany 21, 22, 23; Zoology 1;
 - Geology 17; Physiology 1.
- (d) One of the following: (3-3-3) 9 term hours.
 - European History 1 or 14; American History 1;
 - Economics 1 or 2, 3, 4; Philosophy 18, and 19 or 20;
 - English 7 or 8.

For the remaining 123 term hours required for graduation the student may elect from any courses announced in this College (see page 36, and following) for which he is qualified.

FIRST YEAR

- (a) Fifteen or sixteen hours each term, chosen from the prescribed work indicated above, including English 1.
- (b) Cadet service (men); Hygiene and Physical Training (women); required throughout the first year.

SECOND YEAR

- (a) Fifteen hours each term. This must include all the prescribed work not done in the first year; the other work of the second year to be in three or four departments of which at least two shall be departments in which the student has worked during the first year.
- (b) Cadet service (men); Hygiene and Physical Training (women); required throughout the second year.

THIRD YEAR

Fifteen hours each term in three or four departments, at least one

to be a department in which the student has worked during the second year.

FOURTH YEAR

Fifteen hours each term in three or four departments, at least one to be a department in which the student has worked during the third year.

EXTRA HOURS

A student who has postponed a study in group (b) from the first to the second year, may take sixteen hours in the second year, and by the permission of the Executive Committee a student who has shown exceptional proficiency may be allowed to undertake from one to three extra hours. No extra hours will be granted to a first-year student, or to any student with conditions outstanding.

RULES GOVERNING ELECTIONS

Each student enrolled in the College of Arts, Philosophy and Science must file at the Registrar's office not later than June 1st of each year a complete statement of the courses he wishes to enter the following year. Blanks for this purpose may be obtained of the Registrar.

FIRST YEAR OPTIONS

In order to meet the requirements for graduation, the first-year student must arrange his work on one of the following plans:

I. English; two languages; two sciences, or mathematics and one science, or mathematics alone; deferring until the second year the selection from group (d), above.

II. English; two languages; mathematics or science; one subject from group (d); deferring until the second year a second subject from group (c), above.

III. English; one language; two sciences, or mathematics and one science, or mathematics alone; one subject from group (d); deferring until the second year the second language from group (b), above.

In order to assist the student in his choice of work for the first two years, more specific directions are given below in connection with various natural groupings of studies. *These groups are not mandatory.* The student may make other combinations than those suggested, provided his selection of studies fulfills one of the three options given above. In the second year many other combinations are possible. The time schedule, however, is arranged primarily to fit the combinations recommended. The days and hours at which each study is taught may be found by looking up that study on page 36 (et seq.) of this Bulletin. The title of a group indicates the chief studies of that group. For the work of the first-year student, groups 1 to 6 recommend a complete

curriculum. Groups 7 to 14 name only one or two first-year studies, it being understood that the remaining studies of the first year will be chosen as recommended in some one of the first six groups.

STUDY GROUPS

1. *Greek-Latin*. First year: Greek 1 or 7, 8, 9; Latin 1, 2, 3; English 1; and either 6 hours in (c) or 3 hours in (c) and 3 hours in (d). Second year: Greek 7, 8, 9, or 10, 11, 12; Latin 4, 5, 6. This group corresponds to the former Classical or Arts Course. Before choosing the 3 hours in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

2. *Latin-Modern Language*. First year: Latin 1, 2, 3; French 1 or 2, or German 1 or 4, or Spanish 1 or 2; English 1; and either 6 hours in (c) or 3 hours in (c) and 3 hours in (d). Second year: Latin 4, 5, 6; French or German, or Spanish, continued. This group corresponds in general to the former Latin-Philosophy Course. Before choosing the 3 hours in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

3. *Modern Language*. Substitute two modern languages for Greek and Latin in group 1 above. *Not more than one new language should be begun in the first year.* The student who offers but one language for admission and who does not desire to continue that language in the University should follow the arrangement of language studies suggested in the next group. This group corresponds in general to the former Modern Language-Philosophy Course. Before choosing the work in (d) read groups 7 to 12. Before choosing the work in (c) read groups 4 to 6.

4. *General Science*. First year: German 1 or 4, or French 1 or 2; Chemistry 1; Mathematics 21, 22, 23; English 1; 3 hours in (d). Second year: Continue Chemistry and one other study of the first year, add a second modern language and one of the following: Physics 2; Botany 21, 22, 23; Physiology 1; Zoology 1; Geology 17; Astronomy 1. This group corresponds in general to the former Course in Science. It also opens the way to a thorough professional course in Chemistry. Before choosing the work in (d) read groups 7 to 12.

5. *Mathematics-Physics-Astronomy*. First year: Mathematics 31, 32, 33, 24; French 1 or 2, or German 1 or 4; English 1; 3 hours in (d). Second year: Mathematics 41, 42, 43; Physics 2, Chemistry 1; English and a second modern language. Third year: Astronomy 1 and 2. Instead of Mathematics 31, 32, 33, 24 in the first year, Chemistry 1 and Mathematics 21, 22, 23, may be chosen, to be followed by Mathematics 28 in the second year. This group emphasizes the sciences named in the title. Before choosing the work in (d) read groups 7 to 12.

6. *Biological Sciences*. First year: French 1 or 2, or German 1 or 4; Chemistry 1; Botany 21, 22, 23, or Zoology 1; English 1; 3 hours in (d). Second year: Botany; Zoology; Physiology 1, or Physics 11, or Geology 17; and a second modern language. This group corresponds to the former Course Preparatory to Medicine. Before choosing the work in (d) read groups 7 to 12.

7. *Economics-History*. First year: Include European History 1, or Economics 1 or 2, 3, 4. Second year: Include American History 1, and the subject named above not taken in the first year, continuing the other. This group corresponds to the former English Philosophy Course and Course Preparatory to Law and Journalism.

8. *History-Political Science-Administration*. First year: Include American History 1, or European History 1 or 14. Second year: Include Political Science 1, or Economics 1 and the subject named above not taken in the first year. European History 4 should be taken later. The student who has not a reading command of French or German should begin French or German not later than the second year, continuing the study during two years. This group corresponds to the former Course in Administration. It opens the way to a thorough preparation for law or the public service.

9. *Commerce-Law*. First year: Include German 1 or 4, and Economics 1. Second year: Include Economics, and American History 1 or Elementary Law. This group corresponds to the former Course in Commerce and opens the way to a thorough preparation for a business career.

10. *Sociology-Philosophy*. First year: Include Economics 2, 3, 4. Second year: Include Sociology, Philosophy 15, 16, 17 and one of the following: American History 1, European History 1, Economics 1 or 5, 6, 7. This group emphasizes the studies regarded as essential in preparation for certain important forms of municipal and social service.

11. *Philosophy-Education*. First year: Include Philosophy 18, 19. Second year: Include Philosophy 20, 21 and Education 1, 2, or 3. This group corresponds to the former Course in Education, opening the way to a thorough study either of philosophy, or of educational problems.

12. *General Literature*. Continue both languages offered for admission, begin a third language in the second year and a fourth in the third year. Include English 7 or 8 and European History 14 in the work of the first two years, and take Philosophy 15, 16, 17, or 18, 19, in second or third year.

13. *General Philology*. Greek if not offered for admission should be begun in the first year, and Latin continued. Second year: Include English 28, and German 1 or 4. Note prerequisites for courses 14, 15,

in French; 14 to 21 in Germanic Languages; 19, 20, 21 in Greek; 12 to 25 in Latin; 30 to 35 in English.

NOTICE TO THE CLASS OF 1905

Members of the Class of 1905 are required to complete their respective Courses as given in the catalogue of June, 1901, up to the beginning of the second year, and in addition 135 term hours according to the new requirements, including at least 9 term hours in a study in group (d) unless the student has already completed that amount in a study in that group; the degree to be B. A.; or, on request of the student filed before June 1, 1905, the degree of B. Ph. or B. Sc., for which the student has been previously enrolled; provided that no student will be recommended for the degree of B. Sc. unless he shall have completed at least 60 term hours in Sciences and Mathematics before the Commencement of June, 1905.

GRADUATE COURSES OF STUDY

A special bulletin devoted to the work of the Graduate School may be obtained on application to the Executive Office.

Announcement of Departments

American History and Political Science

(Office, Room 15, University Hall.)

I. AMERICAN HISTORY

PROFESSOR KNIGHT, ASSISTANT PROFESSOR TUTTLE, MR. SPENCER.

1. Political History of the United States. Three credit hours. *Three terms. Section I: M., W., F., at 8; Section II: M., W., F., at 9; Section III: M., W., F., at 1.* This must precede all other courses in American History and Political Science. Assistant Professor TUTTLE, Mr. SPENCER.
- *2. The Formation of the United States, 1600-1820. Three credit hours. *Three terms; M., W., F., at 2.* Should be preceded or accompanied by European History 14 or 4. Mr. SPENCER.
4. The Slavery Struggle and Its Results, 1800-1885. Three credit hours. *Three terms; M., W., F., at 11.* Professor KNIGHT.
- *6. American Diplomacy, Foreign Relations and Expansion. Three credit hours. *Three terms; M., W., F., at 11.* Professor KNIGHT.
7. History of Political Parties, 1774-1900. Three credit hours. *Three terms; M., W., F., at 2.* Mr. SPENCER.
8. Historical Material and Its Use. One credit hour. *First and second terms. W., at 3.* Assistant Professor TUTTLE.
9. Topical Research in American History. One credit hour. *Third term. W., at 3.* Prerequisite, course 8. Assistant Professor TUTTLE.
10. Seminary for Research Work in American History and Political Science. Two credit hours. *Three terms. M., 3 to 5.* Prerequisites, two courses in American history in addition to courses 8 and 9, and at least one course in Political Science. Professor KNIGHT.
11. The Teaching of American History. One credit hour. *Second and third terms. Th., at 3.* Professor KNIGHT.

* Not given until 1905-06.

12. Graduate Seminary in American History and Institutions. Two credit hours. *Three terms. Hours to be arranged.* Open only to graduate students. Professor KNIGHT.
13. Graduate Courses. Courses arranged at the beginning of each year to meet the needs of individual graduate students. Professor KNIGHT.

II. POLITICAL SCIENCE

1. Modern Political Institutions. Three credit hours. *Three terms. M., W., F., at 9.* Prerequisite, American History 1, or European History 1 or 14. Mr. SPENCER.
4. International Law. Two credit hours. *First and second terms. Tu., Th., at 10.* Prerequisite, one course in European History and one course in American History. Professor KNIGHT.
5. History of Treaties and Modern Diplomacy. Two credit hours. *Third term. Tu., Th., at 10.* Prerequisite, course 4. Professor KNIGHT.
6. The Government of Dependencies. Two credit hours. *First term. Tu., Th., at 11.* Professor KNIGHT.
7. Colonial Institutions. Two credit hours. *Second term. Tu., Th., at 11.* Prerequisite, course 6. Professor KNIGHT.
8. Municipal Government. Two credit hours. *Third term. Tu., Th., at 11.* Professor KNIGHT.
9. Origin and Development of the United States Constitution. Two credit hours. *Three terms. Tu., Th., at 2.* Assistant Professor TUTTLE.
10. Theories of Government, Sovereignty and Political Liberty. Two credit hours. *Three Terms. Tu., Th., at 9.* Mr. SPENCER.
12. Comparative Politics. Two credit hours. *Three terms. M., F., at 10.* Prerequisite, Pol. Sci. 1. Mr. SPENCER.
13. American Administration. Two credit hours. *Three terms. Tu., Th., at 3.* Assistant Professor TUTTLE.

Anatomy and Physiology

(Office, Room 12, Biological Hall.)

PROFESSOR BLEILE, MR. DRESBACH, MR. SEYMOUR AND MR. BEER.

1. Human Anatomy and Physiology. Three credit hours. Three terms. Sec. I, *M., W. F., at 8.* Mr. DRESBACH. Sec. II, *M., Th., F., at 10.* Must be preceded or accompanied by a course in chemistry. Professor BLEILE.
3. Chemical Physiology. Three credit hours. Third term. *Th., F., 1 to 4.* Professor BLEILE.

4. Histology and Histo-Chemistry. Five credit hours. Three terms. *M., Tu., W., 1 to 4.* Professor BLEILE, Mr. DRESBACH, Mr. SEYMOUR.
5. Microscopy and Urinary Analysis. Two credit hours. Third term. Professor BLEILE and Mr. DRESBACH.
9. Physiological Laboratory. Three credit hours. Three terms. Professor BLEILE.
11. Physiological Laboratory. Five credit hours. Three terms. Professor BLEILE.

ANCIENT ART.

(See Greek Language and Literature.)

Astronomy

(Office, The Emerson McMillin Observatory.)

PROFESSOR H. C. LORD, MR. J. WARREN SMITH, MR. MAAG.

1. General Astronomy. Two credit hours. Three terms. *Tu., Th., at 1.* Professor LORD.
2. Astronomy, Geodesy and Least Squares. Three credit hours. Three terms. *M., W., F. at 11.* Professor LORD and Mr. MAAG.
3. Meteorology. Two credit hours. Third term. *Tu., F., at 4.* Mr. SMITH.
4. Advanced Astronomy. Three to five credit hours. Three terms. Prerequisite, calculus. Professor LORD.

Bacteriology

(Office, Veterinary Building.)

PROFESSOR MORREY.

5. Bacteriology. Four credit hours. Three terms. *Lecture W. at 11. Laboratory; W., Th., and F., 1 to 4.* Professor MORREY.
6. Advanced Bacteriology. Five credit hours. Professor MORREY.

Botany

(Office, Botanical Hall.)

PROFESSOR KELLERMAN, ASSOCIATE PROFESSOR SCHAFFNER.

UNDERGRADUATE COURSES

3. Systematic and Physiological Botany. Four credit hours. *First term. M., Tu., F., at 10. Laboratory; Th., 10 to 12.* Professor KELLER-

MAN, Associate Professor SCHAFFNER.

4. Medical Botany. Two credit hours. *First term...* M., Th., 10 to 12. Associate Professor SCHAFFNER.
6. Physiological Botany. Three credit hours. *First term.* Tu., Th., at 11. Laboratory, M., 1 to 4; W., 8 to 10. Professor KELLERMAN and Associate Professor SCHAFFNER.
7. Economic Botany. *Second term.* Tu., Th., at 11. Laboratory, M., 1 to 4; W., 8 to 10. Professor KELLERMAN and Associate Professor SCHAFFNER.
8. Vegetable Pathology. *Third term.* Tu., Th., at 11. Laboratory, M., 1 to 4; W., 8 to 10. Professor KELLERMAN and Associate Professor SCHAFFNER.
9. Dendrology. Two credit hours. *First term.* M., W., 10 to 12. Professor KELLERMAN.
10. Dendrology. Two credit hours. *Second term.* Laboratory open daily, 8 to 12. Professor KELLERMAN.
11. Advanced Laboratory Work. *Three terms...* Credit two to five hours. Laboratory open daily 8 to 12. Professor KELLERMAN and Associate Professor SCHAFFNER.
13. Household Botany. Spring term. Four credit hours. *Lectures and Seminary work.* Tu., Th., at 9. Laboratory, Tu., Th., at 11 and M., 2 to 4.
16. Laboratory Work on Medicinal Plants, etc. Two to five credit hours. *Laboratory open daily* 8 to 12. Professor KELLERMAN and Associate Professor SCHAFFNER.
17. Forest Botany. Four credit hours. *Lectures, W., at 9. Laboratory, Tu., Th., 2 to 4.* Prerequisite, courses 6, 7 and 8, or 21, 22 and 23.
18. Normal and Pathological Histology of Wood. Four credit hours. *Seminary, M., W., at 9. Laboratory, Tu., Th., 2 to 4.*
19. Forest Ecology and Pathology. Four credit hours. *Lectures and Seminary, M., and W., at 9. Laboratory, Tu., and Th., 2 to 4.*
21. Ecology. Three credit hours. *First term...* Tu., Th., at 9. Laboratory; Tu., 2 to 4. Professor KELLERMAN and Associate Professor SCHAFFNER.
22. Morphology and Physiology. Continuation of course 21. Three credit hours. *Second term.*
23. Systematic Botany. Continuation of course 22. Three credit hours. *Third term.*
24. Laboratory and Field Work. Two or three credit hours. *Three terms.* Daily, 8 to 12. Professor KELLERMAN and Associate Professor SCHAFFNER.
25. Laboratory Work in Histology and Physiology. Three to five credit

- hours. *Three terms. Laboratory open daily.* Prerequisite, courses 6, 7, 8, or 21, 22, 23. Associate Professor SCHAFFNER.
26. Advanced Laboratory Work in Histology and Microtechnique. Five credit hours. *Three terms. Laboratory open daily.* Prerequisites, courses 6, 7, 8 or 21, 22, 23. Associate Professor SCHAFFNER.
27. Laboratory and Field Work in Systematic Botany. Three to five credit hours. *Three terms.* Prerequisite, courses 6, 7, 8, or 21, 22, 23. Laboratory open daily. Professor KELLERMAN.
32. Minor Investigations. One to three credit hours. *Three terms.* Daily. Prerequisite, course 7. Professor KELLERMAN and Associate Professor SCHAFFNER.
33. Current Literature. One to three credit hours. *Three terms.* Daily. Prerequisite, course 7. Professor KELLERMAN.

GRADUATE WORK

28. Research Work in Systematic Botany. Five credit hours. *Three terms.* Laboratory open daily. Prerequisite, courses 6, 7, 8, or 21, 22, 23. Professor KELLERMAN.
29. Research Work in Morphology and Physiology. Five or ten credit hours. *Three terms.* Laboratory open daily. Prerequisite, course 26. Associate Professor SCHAFFNER.
30. Monographic Work. Five or ten credit hours. *Three terms.* Daily. Prerequisite, course 27. Professor KELLERMAN.
31. Research in Ecology. Five or ten credit hours. *Three terms.* Daily. Prerequisite, courses 6, 7, 8, or 21, 22, 23. Associate Professor SCHAFFNER.

Chemistry

(Office, Townshend Hall.)

PROFESSOR MCPHERSON, EMERITUS PROFESSOR NORTON, ASSOCIATE PROFESSOR HENDERSON, ASSOCIATE PROFESSOR FOULK, MR. MUMMA, MR. WEBB, MISS ANDREWS, MR. WILKINSON, MR. STEWART.

1. (a) Elementary Chemistry. Three credit hours. *Three terms. Tu., Th., at 1, with Laboratory M., 1 to 4, or S., 9 to 12; or W., 11 to 12, with Laboratory Tu., 1 to 4.* Associate Professor HENDERSON, Mr. MUMMA, Miss ANDREWS and Department Fellows.
1. (b) Elementary Chemistry. For students who have chemistry as an entrance credit. Three credit hours. *Three terms.* Schedule same as course 1 (a). Associate Professor HENDERSON, Mr. MUMMA, Miss ANDREWS and Department Fellows.
17. Inorganic Preparations. Laboratory and recitations. Three to five

- credit hours. *Third term.* Afternoons. Associate Professor HENDERSON.
21. Advanced General Chemistry. Lectures and recitations. Two credit hours. *Three terms. Tu., Th., 9 to 10.* Associate Professor HENDERSON.
 37. Qualitative Analysis. Three to five credit hours. *First term.* Prerequisite, course 1. Course 21 should accompany. Associate Professor FOULK.
 38. Quantitative Analysis. Three to five credit hours. *Second and third terms.* Prerequisite, course 37, and should be accompanied by course 40. Associate Professor FOULK.
 39. Quantitative Analysis. Three to five credit hours. *First and second terms.* Prerequisite, course 38. Students electing this course will take course 17 the third term. Associate Professor FOULK.
 40. Stoichiometry. One credit hour. *Th., at 11. Second and third terms.* Associate Professor FOULK.
 8. Organic Chemistry. Five credit hours. *First term. Tu., Th., at 10.* Laboratory open afternoons. Professor MCPHERSON.
 9. Organic Chemistry. Five credit hours. *Tu., Th., at 10.* Laboratory open afternoons. Prerequisite, course 8. Professor MCPHERSON.
 11. Toxicology. Four credit hours. *Third term. Tu., W., Th., F., at 10.* Prerequisite, courses 1 and 2, or equivalent. Professor NORTON.
 35. Rare Elements. Three credit hours. *First term. M., W., F., at 8.* Prerequisite, course 21. Associate Professor HENDERSON.
 30. Physical Chemistry. Three credit hours. *Second and third terms. M., W., F., at 8.* Prerequisite, Quantitative Analysis. Associate Professor HENDERSON.
 41. Physical Chemistry. Laboratory. Three to five credit hours. *Three terms. Afternoons.* Prerequisite, course 30. Associate Professor HENDERSON.
 32. Industrial Chemistry. Four credit hours. *First and second terms. Tu., Th., at 10; W., Th., 1-3.* Prerequisite, the equivalent of courses 37 and 38. Professor NORTON.
 15. Sanitary Analysis. Four credit hours. *Third term. Tu., Th., at 10; Laboratory, afternoons.* Prerequisite, course 38, or its equivalent. Associate Professor FOULK.
 25. Historical Chemistry. Three credit hours. *Second term.* Prerequisite, course 21. Professor NORTON.
 26. Chemical Seminary. One credit hour. *Three terms. Monday evenings.* For advanced students.
 27. (a) Advanced Chemistry. Organic. Three to five credit hours.

Three terms. Prerequisite, courses 8 and 9. Professor McPHERSON.

27. (b) Advanced Chemistry. Inorganic. Credit hours and time as 27(a). Associate Professor HENDERSON.
27. (c) Advanced Chemistry. Analytical. Associate Professor FOULK.
28. Organic Chemistry. Two credit hours. *Third term.* Prerequisite, courses 8 and 9, and preferably 27(a). Professor McPHERSON.
29. Research Work. Five to ten credit hours. *Three terms.* Professor McPHERSON, Associate Professor HENDERSON, Associate Professor FOULK.
36. The Teaching of Chemistry. Three credit hours. *Third term. Tu., Th., at 9.* Prerequisite, the permission of the instructor in charge. Professor McPHERSON.

Civil Engineering

(Office, Room 31, Brown Hall.)

PROFESSOR SHERMAN.

(Of the twenty-one courses offered in the Department of Civil Engineering, the following course is open to students of the College of Arts, Philosophy and Science.)

21. Surveying. Three credit hours. *Third term.* Prerequisite, Mathematics 21, 22, 23 or equivalent. *M., W., F., at 9.* Professor SHERMAN.

Domestic Science

(Office, Hayes Hall.)

PROFESSOR STONER.

(Of the eleven courses offered in the Department of Domestic Science, the following are open to students of the College of Arts, Philosophy and Science.)

1. Food Economics. Five credit hours. *First term; M., W., at 9 and Tu., W., 1 to 4.* Prerequisite, Chemistry 1 or equivalent and Botany. Professor STONER.
2. Food Economics. Five credit hours. *Second term.* Days and hours as in course 1. Prerequisite, course 1. Professor STONER.
3. Advanced Food Economics. Five credit hours. *Third term.* Days and hours as in course 1. Prerequisite, course 2. Professor STONER.
10. Household Economics. Two and one-half credit hours. *Third term. Tu., Th., at 9.* Professor STONER.

Drawing

(Office, Brown Hall.)

PROFESSOR BRADFORD, ASSOCIATE PROFESSOR FRENCH, MR. LEWIS, MR. MARTIN,
MR. TIDBALL.

(Of the nineteen courses offered in the Department of Drawing, the following are open to students in the College of Arts, Philosophy and Science.)

7. Photography. Two credit hours. *First term.* M., Tu., 1 to 3.
Prerequisite, Chemistry 1. Professor BRADFORD.
10. Mechanical Drawing. Three credit hours. *First term.* Th., and
F., 1 to 4. Associate Professor FRENCH.
14. Pen Drawing. Two credit hours. *First term.* M. and Tu., 2 to 4.
Prerequisite, course 26. Mr. LEWIS.
17. Water or Oil Color Painting. Two credit hours. *First term.* Mr.
MARTIN.
18. Water or Oil Color Painting. Two credit hours. Tu., Th., 8 to 11.
Second term. Mr. MARTIN.
19. Water or Oil Color Painting. Two credit hours. Tu., Th., 8 to 10.
Third term. Mr. MARTIN.
- 17, 18 and 19 constitute a continuous year's work. Prerequisite 24,
25 and 26.
24. Freehand Drawing. One or two credit hours. *First term.* Mr.
LEWIS, Mr. MARTIN, Mr. TIDBALL.
25. Freehand Drawing. One or two credit hours. *Second term.* Mr.
LEWIS, Mr. MARTIN, Mr. TIDBALL.
26. Freehand Drawing. One or two credit hours. *Third term.* Mr.
LEWIS, Mr. MARTIN, Mr. TIDBALL.
- 24, 25 and 26 constitute a continuous year's work.

Economics and Sociology

(Office, Room 18, University Hall.)

PROFESSOR HAGERTY, PRESIDENT THOMPSON, ASSISTANT PROFESSOR ———.

UNDERGRADUATE COURSES

1. Elements of Political Economy. Three credit hours. *Three terms.*
Sec. 1, M., W., F., at 8; Sec. 2, M., W., F., at 9; Sec. 3, M., W.,
F., at 2. Professor HAGERTY.
2. The History of Industrial Society. Three credit hours. *First term.*
M., W., F., at 9. Assistant Professor ———.
3. Industrial and Financial History of the United States. Three credit

- hours. *Second term. M., W., F., at 9.* Assistant Professor ———.
4. Transportation. Three credit hours. *Third term. M., W., F., at 9.* Assistant Professor ———.
 5. Practical Problems: Immigration, Money, Land. Two credit hours. *First term. Tu., Th., at 9.* Prerequisite, 1 or 2, 3, 4. Assistant Professor ———.
 6. Practical Problems: Railroads, Tariff, Crises. Two credit hours. *Second term. Tu., Th., at 9.* Prerequisite, course 5. Assistant Professor ———.
 7. Practical Problems: Labor and Capital. Two credit hours. *Third term. Tu., Th., at 9.* Prerequisite, course 6. Assistant Professor ———.
 8. Economic Geography. Three credit hours. *First term. M., W., F., at 11.* Prerequisite, course 1. Assistant Professor ———.
 9. Economic Geography of the United States. Three credit hours. *Second term. M., W., F., at 11.* Prerequisite, course 28. Assistant Professor ———.
 10. The Distribution of Products. Three credit hours. *Third term. M., W., F., at 11.* Prerequisite, courses 28 and 29. Assistant Professor ———.
 11. Sociology. Three credit hours. *First and second terms; M., W., F., at 1.* Prerequisite, course 1 or courses 2, 3 and 4. Professor HAGERTY.
 12. Primitive Society. Three credit hours. *Third term; M., W., F., at 1.* Prerequisite, course 11. Professor HAGERTY.
 13. Public Finance and Taxation. Two credit hours. *First and second terms. Tu. and Th. at 2.* President THOMPSON.
 14. Problems in Sociology. Two credit hours. *Three terms. Tu. and Th., at 2.* President THOMPSON.
 15. Problems in Sociology. Two credit hours. *Three terms. Tu. and Th., at 10.* Prerequisite, courses 11 and 22. Professor HAGERTY.
 16. Commerce. Three credit hours. *Three terms. M., W., F., at 11.* Prerequisites, courses 28, 29 and 30.
 17. Seminary in Economics. Open to graduates and advanced undergraduates by permission of the head of the department. Two credit hours. *Three terms. M., 3 to 5.* Professor HAGERTY.
 18. Thesis Work. Two credit hours. *Three terms.*
 - *19. Business Laws and Forms. Two credit hours. *First and second terms. Tu. and Th., at 11.*
 - *20. Corporation Problems. Two credit hours. *Third term. Tu. and Th., at 11.*

* Not given until 1905-6.

- *21. Economic Thought. Two credit hours. *First term. Tu. and Th., at 11.* Prerequisite, courses 1, 2, 3 and 4. Professor HAGERTY.

GRADUATE COURSES

22. Advanced Economics. Open to undergraduates only on permission of the head of the department. One to ten credit hours. *Three terms.* Elections will naturally fall under the following heads:
- (a) Theoretical problems.
 - (b) Historical problems.
 - (c) Practical problems.
 - (d) Finance.
 - (e) Commerce.
 - (f) Sociology (theoretical or practical.)
 - (g) Statistics.
 - (h) Teachers' course and training for fellowship. If enough students elect the same line of work, a Seminary will be organized for such work.
- A *Seminary in Sociology* (22f) is announced for the year 1904-5, *Tu., 3 to 5.*

Education

(Office, Room 51, University Hall.)

PROFESSOR MAJOR, ASSISTANT PROFESSOR HAINES.

1. Educational Psychology. Three credit hours. *Three terms. M., W., F., at 11.* Prerequisite, one year of college work. Professor MAJOR.
2. Introduction to Educational Theory. Two credit hours. *Three terms. Tu., Th., at 10.* Professor MAJOR.
3. History of Education. Three credit hours. *Three terms. M., W., F., at 2.* Assistant Professor HAINES.
4. Child Study. Two credit hours. *Three terms. M., F., at 10.* Professor MAJOR.
5. Science of Education. Three credit hours. *Three terms. M., W., F., at 11.* Prerequisite, Philosophy 18, 19 and Education 1, 2 or 3. Assistant Professor HAINES.
6. Modern Educational Systems. Two credit hours. *First and second terms.* Professor MAJOR.
7. Secondary Education. Two credit hours. *Three terms; Tu., Th., at 11.* Prerequisite, two years of college work. Professor MAJOR.

*Not given until 1905-06.

8. Educational Classics. Two credit hours. *Three terms; M., W., at 2.* Professor MAJOR.
9. Seminar. One credit hour. *Three terms; F., 2 to 4.* Prerequisite, three years of college work with Philosophy or Education largely elected. Professor MAJOR.

Electrical Engineering

(Office, Room 8, Electrical Building.)

PROFESSOR CALDWELL, ASSISTANT PROFESSOR FISH.

6. Electrical Engineering. Two credit hours. *First and second terms. M., Th., at 10.* Prerequisites, Mathematics 20 and Physics 2. Professor CALDWELL.
7. Electrical Engineering; Laboratory. Two credit hours. *First and second terms.* (For hours see Eng. Col. Schedule.) Course 6 must accompany this course. Professor CALDWELL, Assistant Professor FISH.
8. Direct Current Dynamo Machinery. Four credit hours. *Second term. M., T., Th., F., at 9.* Prerequisite, Physics 3 and 4. Professor CALDWELL.
9. Elementary Dynamo Laboratory. Four credit hours. *Third term. W., Th., 1 to 4; F., 1 to 4; Sat., 8 to 12.* Election subject to available accommodations. Prerequisite, course 8. Professor CALDWELL, Assistant Professor FISH.
10. Alternating Current Circuits and Machinery. Three credit hours. *First and second terms. M., W., F., at 11 first term, and at 8 second term.* Prerequisite, course 9. Professor CALDWELL.
11. Advanced Dynamo Laboratory. Three credit hours. *Three terms.* Must be accompanied by Course 10. For hours see schedule. Professor CALDWELL and Assistant Professor FISH.

English

(Office, Rooms 44 and 31, University Hall.)

PROFESSOR DENNEY, PROFESSOR BARROWS, ASSOCIATE PROFESSOR TAYLOR,
ASSISTANT PROFESSOR GRAVES, ASSISTANT PROFESSOR MCKNIGHT, MISS
MOILLOY, MISS WEAVER, MISS JACKSON.

UNDERGRADUATE COURSES.

1. Paragraph Writing and Analysis of Prose (Formerly Rhetoric 1). Two credit hours. *Three terms. M., Th., or Tu., F., at 8, Tu., Th., at 9, Tu., Th., at 10, M., F., at 11.* Professor DENNEY, ASSO-

ciate Professor TAYLOR, Assistant Professor GRAVES, Assistant Professor McKNIGHT, Miss MOLLOY, Miss WEAVER, Miss JACKSON.

2. Expository Writing (Formerly Rhetoric 2). Two credit hours. *First term. M., or Tu., and Th., or F., at 10, Tu., Th., at 11, W., F., at 1.* Prerequisite, course 1. Professor DENNEY.
3. Brief Making and Argumentation (Formerly Rhetoric 3.) Two credit hours. *Second and third terms. M. or Tu. and Th., or F., at 10, Tu., Th., at 11, W., F., at 1.* Prerequisite, course 1. Professor DENNEY.
5. Advanced Composition (Formerly Rhetoric 10.) Two credit hours. *Second and third terms.* Prerequisite, courses 1 and 2. *Tu., Th., at 11.* Assistant Professor GRAVES.
7. Introduction to English Literature (Formerly English Literature 1.) Three credit hours. *Three terms.* No prerequisite course. *M., W., F., at 8, M., W., F., at 9.* Professor BARROWS.
8. General Survey of English Literature. Three credit hours. *Three terms.* No prerequisite course. *M., W., F., at 11.* Assistant Professor GRAVES.
10. From Spenser to Milton (Formerly English Literature 2.) Three credit hours. *First Term.* Prerequisite, course 7 or 8. *M., Tu., Th., at 10.* Professor BARROWS.
11. From Dryden to Pope (Formerly English Literature 3.) Three credit hours. *Second term.* Prerequisite, course 7 or 8. *M., Tu., Th., at 10.* Professor BARROWS.
12. The Age of Johnson (Formerly English Literature 4.) Three credit hours. *Third term.* Prerequisite, course 7 or 8. *M., Tu., Th., at 10.* Professor BARROWS.
14. Burke to DeQuincey. Four credit hours. *First term.* Prerequisite, course 7 or 8. *M., Tu., W., Th., at 9.* Professor DENNEY.
15. Carlyle and Ruskin. Four credit hours. *Second term.* Prerequisite, course 7 or 8. *M., Tu., W., Th., at 9.* Professor DENNEY.
16. Arnold and Newman. Four credit hours. *Third term.* *M., Tu., W., Th., at 9.* Prerequisite, course 7 or 8. Professor DENNEY.
18. Shelley and Wordsworth. Three credit hours. *First term. M., W., F., at 9.* Prerequisite, course 7 or 8. Associate Professor TAYLOR.
19. Tennyson. Three credit hours. *Second term.* Prerequisite, course 7 or 8. *M., W., F., at 9.* Associate Professor TAYLOR.
20. Browning. Three credit hours. *Third term.* Prerequisite, course 7 or 8. *M., W., F., at 9.* Associate Professor TAYLOR.
22. The English Bible: The Pentateuch and Earlier Histories (Formerly English Literature 7.) One credit hour. *Three terms.* No prerequisite course. *Th. at 8.* Professor BARROWS.

- *23. The English Bible: Later Histories, Poetry and Prophecies (Formerly English Literature 8.) One credit hour. *Three terms*. No prerequisite course. Professor BARROWS.
- †24. The English Bible: The New Testament (Formerly English Literature 9.) One credit hour. *Three terms*. No prerequisite course. Professor BARROWS.
- *26. History of the English Language (Formerly Rhetoric 15.) Two credit hours. *First and second terms*. No prerequisite course. *Tu., Th., at 9*. Assistant Professor McKNIGHT.
- *27. English Words. Two credit hours. *Third term*. No prerequisite course. *Tu., Th., at 9*. Assistant Professor McKNIGHT.
- 28. Old English (Formerly Rhetoric 16.) Two credit hours. *Three terms*. No prerequisite course. *Tu., Th., at 9*. Assistant Professor McKNIGHT.
- 30. Pre-Chaucerian Literature (Formerly Rhetoric 18.) Three credit hours. *First term*. *M., W., F., at 11*. Assistant Professor McKNIGHT.
- 31. Chaucer (Formerly English Literature 13.) Three credit hours. *Second term*. *M., W., F., at 11*. Assistant Professor McKNIGHT.
- 32. Arthurian Story (Formerly Rhetoric 17.) Three credit hours. *Third term*. *M., W., F., at 11*. Assistant Professor McKNIGHT.
- 35. Shakespeare and the Elizabethan Drama (Formerly English Literature 10.) Three credit hours. *Three terms*. Prerequisite, course 7 or 8. *M., W., F., at 3*. Professor BARROWS.
- *36. The Drama Since Shakespeare (Formerly English Literature 15.) Three credit hours. *First and second terms*. Prerequisites, course 7 or 8. Professor BARROWS.
- *37. Milton: Epic and Prose (Formerly English Literature 14.) Three credit hours. *Third term*. Prerequisites, course 7 or 8. Professor BARROWS.
- *38. The History of Prose Fiction. Four credit hours. *First term*. Prerequisite, course 7 or 8. Professor BARROWS.
- 39. The Short Story (Formerly Rhetoric 4.) Four credit hours. *First term*. Prerequisite, courses 2 and 7 or 8. *M., W., Th., F., at 2*. Assistant Professor GRAVES.
- 40. The Novel (Formerly English Literature 11.) Four credit hours. *Second and third terms*. Prerequisite, course 7 or 8. *M., W., Th., F., at 2*. Associate Professor TAYLOR.
- 42. Literary Types (Formerly English Literature 17.) Three credit hours. *First and second terms*. Prerequisite, course 7 or 8. *M., W., F., at 1*. Associate Professor TAYLOR.

*Not given until 1905-06.

†Not given until 1906-07.

43. Poetics (Formerly Rhetoric 6.) Three credit hours. *Third term.* Prerequisite, course 7 or 8. *M., W., F., at 1.* Assistant Professor GRAVES.
45. American Literature (Formerly English Literature 12.) Three credit hours. *First term.* Prerequisite, course 7 or 8. *M., Th., F., at 10.* Associate Professor TAYLOR.
46. Current Literature (Formerly English Literature 19.) Three credit hours. *Second and third terms.* Prerequisite, course 7 or 8. *M., Th., F., at 10.* Associate Professor TAYLOR.
- *48. Teachers' Course (Formerly Rhetoric 13.) Two credit hours. *Three terms.* Prerequisite, courses 1 and 7 or 8. Professor DENNEY.
49. Seminary in Rhetoric (Formerly Rhetoric 12.) Two credit hours. *Three terms.* Topic for 1904-5: Development of Rhetorical Ideas. *M., 4 to 6.* Assistant Professor MCKNIGHT.
- *50. Seminary in Literary Criticism. Two credit hours. *Three terms.* Topics for 1905-6: Shakespeare's Early Comedies. Professor DENNEY.

GRADUATE COURSES.

- (a) Theories of Rhetoric. Professor DENNEY.
- (b) Old and Middle English Philology. Assistant Professor MCKNIGHT.
- (c) Literary Problems. Professor BARROWS.
- (d) Comparative Criticism. Associate Professor TAYLOR.

ENTOMOLOGY.

(See Zoology and Entomology.)

European History

(Office, Room 36, University Hall.)

PROFESSOR SIEBERT, DR. MCNEAL.

1. The Early Middle Ages. Three credit hours. *First term.* Section 1, *M., W., F., at 9.* Professor SIEBERT. Section 2, *M. W., F., at 1.* Dr. McNEAL.
2. Renaissance. Three credit hours. *Second term.* Section 1, *M., W., F., at 9.* Professor SIEBERT. Section 2, *M., W., F., at 1.* Dr. McNEAL.
3. Modern Europe. Three credit hours. *Third term.* Section 1, *M., W., F., at 9.* Professor SIEBERT. Section 2, *M., W., F., at 1.* Dr. McNEAL.

*Not given until 1905-06.

4. Political and Constitutional History of England. Three credit hours. *Three terms. M., W., F., at 11.* Prerequisite, course 14 or courses 1, 2, 3. Professor SIEBERT.
5. Political and Social History of Greece to the Roman Conquest. Two credit hours. *First term. Tu., Th., at 9.* Dr. McNEAL.
6. Roman History and Institutions to the End of the Republic. Two credit hours. *Second and third terms. Tu., Th., at 9.* Dr. McNEAL.
7. Period of the Protestant Reformation. Three credit hours. *First term. M., W., F., at 2.* Prerequisite, courses 1, 2 and 3 or course 14. Professor SIEBERT.
8. The French Revolution and Napoleonic Periods, 1789-1815. Three credit hours. *Second term M., W., F., at 2.* Prerequisite, courses 1, 2 and 3 or course 14. Professor SIEBERT.
9. History of Europe in the Nineteenth Century. Three credit hours. *Third term. M., W., F., at 2.* Prerequisite, courses 1, 2 and 3 or course 14. Professor SIEBERT.
- *10. History of European Colonies. Three credit hours. *First and second terms. M., Tu., F., at 10.* Prerequisites, courses 1, 2 and 3 or course 14. Professor SIEBERT.
- *11. The Eastern Question. Three credit hours. *Third term. M., Tu., F., at 10.* Prerequisite, courses 1, 2 and 3. Professor SIEBERT.
- *12. Constitutional History of France. Two credit hours. *Three terms; Tu., Th., at 9.* Prerequisite, courses 1, 2, and 3, and ability to read French. Dr. McNEAL.
14. Narrative History of England. Three credit hours. *Three terms. M., W., F., at 8.* Dr. McNEAL.
15. History of Northeastern Europe. Two credit hours. *First and second terms. Tu., Th., at 9.* Prerequisite, courses 1, 2 and 3 or course 14. Professor SIEBERT.
16. Europe and the Asiatic Question. Two credit hours. *Third term. Tu., Th., at 9.* Prerequisite, courses 1, 2 and 3 or course 14. Professor SIEBERT.
- *18. History of Medieval Civilization. Three credit hours. *Three terms. M., W., F., at 3.* Prerequisite, courses 1, 2 and 3. Dr. McNEAL.
- 19a. The Germanic Invasions. Three credit hours. *First term. M., W., F., at 3.* Prerequisite courses 1, 2 and 3 or course 14. Dr. McNEAL.
- 19b. Charles the Great. Three credit hours. *Second term. M., W., F., at 3.* Prerequisite, courses 1, 2 and 3 or course 14. Dr. McNEAL.
- 19c. The Feudal System. Three credit hours. *Third term. M., W., F., at 3.* Prerequisite, courses 1, 2 and 3 or course 14. Dr. McNEAL.

*Not given until 1905-06.

20. Historical Method and Documentary Sources of the Middle Ages. Two credit hours. *Three terms.* Prerequisite, courses 1, 2 and 3 or course 14. Dr. MCNEAL.
21. Investigations of Special Topics in Modern European History. Open only by permission of instructor. Professor SIEBERT.

FRENCH.

(See Romance Languages and Literatures.)

Geology

(Office, Orton Hall.)

PROFESSOR PROSSER, PROFESSOR BOWNOCKER.

6. Economic Geology. Three credit hours. *Three terms.* M., W., F., at 11. Prerequisite, courses 11 and 12. Professor BOWNOCKER.
11. Inorganic Geology. Three credit hours. *First term.* M., W., F., at 9. No prerequisite course. Professor BOWNOCKER.
12. Historical Geology. Three credit hours. *Second term.* M., W., F., at 9. Prerequisite, course 11. Professor PROSSER.
13. Field Geology. Three credit hours. *Third term.* Lecture, M., at 9. *Field trips, Sat. Laboratory open* M., Tu., W., Th., F., 8 to 12, and 1 to 4. Prerequisite, courses 11 and 12. Professor PROSSER.
14. Paleontology. Two to five credit hours. *Three terms.* *Laboratory open* M., Tu., W., Th., F., 9 to 12 and 1 to 4. Prerequisite, courses 11 and 12. Professor PROSSER.
15. Areal Geology. Two to five credit hours. *First and third terms.* *Field work Sat. Laboratory open* M., Tu., W., Th., F., 9 to 12 and 1 to 4. Prerequisite, courses 11, 12, 13 and 14. Professor PROSSER.
16. Advanced Historical Geology. Three to five credit hours. *Three terms.* *Field work to be arranged. Laboratory open* M., Tu., W., Th., F., 9 to 12 and 1 to 4. Prerequisite, courses 11, 12, 13 and 14. Professor PROSSER.
17. Physiography. Three credit hours. *Three terms.* M., W., F., at 1. Open to first and second year students only. Professor BOWNOCKER.
18. Geographic Geology. Three credit hours. *Third term.* Tu., Th., at 9. Prerequisite, course 11 or 17. Professor BOWNOCKER.
10. Petrography. Two credit hours. *Three terms.* *Laboratory open* M., Tu., W., Th., F., 1 to 4. Prerequisite, Chemistry 1, Metallurgy 2. Professor BOWNOCKER.

20. Research Work. Three to five credit hours. *Three terms.* Prerequisite, preceding courses in inorganic or historical geology. Professor BOWNOCKER or Professor PROSSER.
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Germanic Languages and Literatures

(Office, Rooms 30 and 32, University Hall.)

PROFESSOR RHOADES, ASSISTANT PROFESSOR VILES, MR. EISENLOHR.

1. Elementary German. Four credit hours. *Three terms.* Section I, M., Tu., W., Th., at 9. Professor RHOADES. Section II, M., Tu., Th., F., at 10. Assistant Professor VILES. Section III, M., Tu., Th., F., at 11. Mr. EISENLOHR. Section IV, Tu., W., Th., F., at 2. Assistant Professor VILES. Section V, Tu., W., Th., F., at 3. Mr. EISENLOHR.
2. Science Reading. Two or four credit hours. *Three terms.* Section I, M., Tu., W., Th., at 9; Section II, Tu., Th., at 8. Mr. EISENLOHR.
4. Intermediate German. Four credit hours. *Three terms.* Section I, M., Tu., Th., F., at 10. Professor RHOADES. Section II, M., Tu., Th., F., at 11. Assistant Professor VILES.
9. Classical Drama. Three credit hours. *Three terms.* M., W., F., at 2. Prerequisite, course 4 or equivalent. Professor RHOADES.
- *10. Modern Prose and Drama. Three credit hours. *Three terms.* M., W., F., at 2. Prerequisite, course 4 or equivalent. Professor RHOADES.
11. Faust. Three credit hours. *First and second terms.* M., W., F., at 11. Prerequisite, courses 9 or 10; must be elected for both terms. Professor RHOADES.
12. Colloquial Exercises and Composition. Two credit hours. *Three terms.* Tu., Th., at 2. Prerequisite, course 4; open only by permission. Mr. EISENLOHR.
13. Deutscher Aufsatz. One credit hour. *Three terms.* First and second terms, M., at 2. Assistant Professor VILES. Third term, Tu., at 2. Professor RHOADES.
14. Gothic. Three credit hours. *First term.* M., W., F., at 8. Assistant Professor VILES.
15. Old High German. Two credit hours. *Second term.* M., W., at 8. Assistant Professor VILES.
16. Middle High German. Two credit hours. *Three terms.* Tu., Th., at 8. Assistant Professor VILES.

* Not offered in 1904-1905.

17. Old Saxon and Old Norse. One credit hour. *Second and third terms. F., at 8.* Prerequisite, course 14; course 15 should precede or accompany. Assistant Professor VILES.
26. Seminary. Contemporary German Drama. Two credit hours. *Three terms.* Except by permission, open only to fourth year and graduate students. Professor RHOADES.
28. Volkslied and Kirchenlied. Two credit hours. *M., W., at 2. Three terms.* Prerequisite, course 4. Mr. EISENLOHR.
30. History of German Literature since the Reformation. Three credit hours. *Third term. M., W., F., at 11.* Must be preceded or accompanied by course 9 or 10. Professor RHOADES.

Greek Language and Literature

(Office, Room 28, University Hall.)

PROFESSOR SMITH, ASSOCIATE PROFESSOR HODGMAN, ASSOCIATE PROFESSOR
ELDEN.

1. Elementary Greek. Four credit hours. *Three terms. M., Tu., Th., F., at 11.* Associate Professor ELDEN.
7. Xenophon: The Memorabilia of Socrates; Exercises in Greek Prose. Four credit hours. *First term. M., Tu., Th., F., at 11.* Prerequisite, course 1. Professor SMITH.
8. Heroditus, Selections; with Studies in Greek History. Four credit hours. *Second term. M., Tu., Th., F., at 11.* Prerequisite, course 7. Professor SMITH.
9. Homer's Odyssey, Selections from Books I-IX. Four credit hours. *Third term. M., Tu., Th., F., at 11.* Prerequisite, courses 7 and 8. Professor SMITH.
10. Lysias: Eight Orations; with Studies in Attic Procedure. Three credit hours. *First term. Tu., Th., F., at 10.* Prerequisite, courses 7 to 9. Professor SMITH.
11. Plato: Apology, Crito and Phædo. Three credit hours. *Second term. Tu., Th., F., at 10.* Prerequisite, courses 7 to 10. Professor SMITH.
12. Homer's Iliad. Three credit hours. *Third term. Tu., Th., F., at 10.* Prerequisite, course 9. Professor SMITH.
13. Thucydides: Book I or Book VII. Three credit hours. *First term. M., W., F., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
14. Demosthenes: Olynthiacs and Philippics. Three credit hours. *Second term. M., W., F., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.

15. Greek Lyric Poets, or Theocritus. Three credit hours. *Third term. M., W., F., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
16. Euripides: Alcestis, with lectures on the Attic drama. Two credit hours. *First term. Tu., Th., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
17. Sophocles: Oedipus Tyrannus. Two credit hours. *Second term. Tu., Th., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
18. Aeschylus: Agamemnon. Two credit hours. *Third term. Tu., Th., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
- *19. Epic Poetry. Two credit hours. *First term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
- *20. Greek Comedy. Two credit hours. *Second term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
- *21. Post-Classical Greek. Two credit hours. *Third term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
- *22. Ancient Art. Lectures on Architecture. Two credit hours. *First term.* No prerequisite course. Professor SMITH.
- *23. Ancient Art. Lectures on Sculpture. Two credit hours. *Second term.* No prerequisite course. Professor SMITH.
- *24. Private Life of the Greeks. Two credit hours. *Third term.* Prerequisite, courses 7 to 12. Professor SMITH.
25. Greek Philosophy. Two credit hours. *First term. Tu., Th., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
26. Plato: Gorgias or Protagoras. Two credit hours. *Second term. Tu., Th., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
27. Studies in New Testament Greek. Two credit hours. *Third term. Tu., Th., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
- *28. Historical Grammar. One credit hour. *Three terms. Th., at 3.* Prerequisite, courses 7 to 12. Associate Professor HODGMAN.
29. Relations of Greece and Persia: the Panegyricus of Isocrates. Two credit hours. *First term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
30. The Macedonian Supremacy: Arrian's Expedition of Alexander the Great. Two credit hours. *Second term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.
31. Later Greek Epics: the Argonautica of Apollonius Rhodius. Two credit hours. *Third term. W., F., at 2.* Prerequisite, courses 7 to 12. Professor SMITH.

* Not given until 1905-06.

HISTORY

(See American and European History.)

ITALIAN

(See Romance Languages.)

Latin Language and Literature

(Office, Room 28, University Hall.)

PROFESSOR DERBY, ASSOCIATE PROFESSOR HODGMAN, ASSOCIATE PROFESSOR
ELDEN.

1. Cicero: De Senectute and De Amicitia, or selected letters. Four credit hours. *First term.* Prerequisite, four units of preparatory Latin. *Section I, M., Tu., Th., F., at 10.* Associate Professor ELDEN. *Section II, M., Tu., Th., F., at 11.* Professor DERBY. *Section III, Tu., W., Th., F., at 2.* Associate Professor HODGMAN.
2. Livy: Book 1, 2, 21 or 22. Four credit hours. *Second term.* Prerequisite course 1. *Section I, M., Tu., Th., F., at 10.* Associate Professor ELDEN. *Section II, M., Tu., Th., F., at 11.* Professor DERBY. *Section III, Tu., W., Th., F., at 2.* Associate Professor HODGMAN.
3. Horace: Odes. Four credit hours. *Third term.* Prerequisite, courses 1 and 2. *Section I, M., Tu., Th., F., at 10.* Associate Professor ELDEN. *Section II, M., Tu., Th., F., at 11.* Professor DERBY. *Section III, Tu., W., Th., F., at 2.* Associate Professor HODGMAN.
4. Pliny: Selected Letters. Three credit hours. *First term. Section I, Tu., Th., F., at 2.* Professor DERBY. *Section II, Tu., Th., F., at 11.* Associate Professor HODGMAN.
5. Tacitus: Germania and Agricola, or Catullus. Three credit hours. *Second term. Section I, Tu., Th., F., at 2.* Professor DERBY. *Section II, Tu., Th., F., at 11.* Associate Professor HODGMAN.
6. Terence: Phormio; Plautus, Trinummus or Captivi. Three credit hours. *Second term. Section I, Tu., Th., F., at 2.* Professor DERBY. *Section II, Tu., Th., F., at 11.* Associate Professor HODGMAN.
- *7. Tacitus: Historiæ or Annales. Three credit hours. *First term.*
- *8. Juvenal: Satires. Three credit hours. *Second term.*
- *9. Martial: Selected Epigrams. Three credit hours. *Third term.*
10. Plautus: Menæchmi and Rudens. Three credit hours. *First term. Tu., Th., F., at 10.* Prerequisite, courses 1 to 3, and 4 to 6. Associate Professor HODGMAN.

*Not given until 1905-06.

11. Cicero: De Finibus or De Officiis. Three credit hours. *Second term. Tu., Th., F., at 10.* Prerequisite, courses 1 to 3, and 4 to 6. Associate Professor HODGMAN.
12. Seneca. Three credit hours. *Third term; Tu., Th., F., at 10.* Prerequisite, courses 1 to 3, and 4 to 6. Associate Professor HODGMAN.
13. Cicero: De Natura Deorum. Three credit hours. *First term. M., W., F., at 9.* Prerequisite courses 1 to 3 and 4 to 6. Associate Professor ELDEN.
14. Lucretius: De Rerum Natura. Three credit hours. *Second term. M., W., F., at 9.* Prerequisite, courses 1 to 3 and 4 to 6. Associate Professor ELDEN.
15. Horace: Satires. Three credit hours. *Third term. M., W., F., at 9.* Prerequisite, courses 1 to 3 and 4 to 6. Associate Professor ELDEN.
- *16. Horace: Epistles. Three credit hours. *First term. M., W., F., at 3.* Professor DERBY.
- *17. Suetonius: or Tacitus, Annals. Three credit hours. *Second term. M., W., F., at 3.* Professor DERBY.
- *17a. Late Latin. Three credit hours. *Third term. M., W., F., at 3.* Professor DERBY.
18. Teachers' Course. Three credit hours. *Three terms. Tu., Th., at 9.* Prerequisite, courses 1 to 6. Associate Professor ELDEN.
- *19. Latin Prose Composition. Two credit hours. *Three terms. M., W., at 8.* Professor DERBY.
20. Antiquities. Two credit hours. *Three terms. Tu., Th., at 8.* Prerequisite, courses 1 to 3 and 4 to 6. Professor DERBY.
- *21. Latin Literature. Two credit hours. *First and second terms.*
- *22. Latin Philology. Two credit hours. *Third term.*
- *23. Historical Latin Grammar. Two credit hours. *Three terms. Tu., Th., at 10.* Associate Professor HODGMAN.
- *24. Advanced Latin Writing. Two credit hours. *Three terms.*
25. Pro-Seminary. Three credit hours. *Three terms. M., W., at 2.* Prerequisite, course 18. Professor DERBY.
26. Pharmaceutical Latin. Four credit hours. *Three terms.*
- *27. Ovid: Fasti. One credit hour. *Three terms, F., at 10.* Associate Professor HODGMAN.
- *28. Historical Latin Grammar. One credit hour. *Three terms. F., at 3.* Associate Professor ELDEN.

Law

(Office, Page Hall.)

PROFESSOR RANDALL, PROFESSOR PAGE, MR. ———.

- Elementary Law. Five credit hours. *First semester. M., Tu., W., Th., F., at 1, 2, or 3. Mr. ———.*
- Contracts. Four credit hours. *Second semester. M., Tu., 1 to 3, and F., at 1. Professor PAGE.*
- Negotiable Instruments. Five credit hours. *First semester. M., Tu., W., Th., at 1. Prerequisite, the preceding courses in Law. Professor RANDALL.*
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Mathematics

(Office, Room 45, University Hall.)

PROFESSOR BOHANNON, ASSOCIATE PROFESSOR MCCOARD, ASSOCIATE PROFESSOR BOYD, ASSISTANT PROFESSOR ARNOLD, ASSISTANT PROFESSOR SWARTZEL, ASSISTANT PROFESSOR KUHN, ASSISTANT PROFESSOR CODDINGTON, MR. RASOR.

21. College Algebra. Three credit hours. *First term. M., W., F., at 9, 11 and 1. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors SWARTZEL, KUHN, Mr. RASOR, Mr. CLEMENTS.*
22. Plane Trigonometry. Three credit hours. *Second term. M., W., F., at 9, 11 and 1. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors SWARTZEL, KUHN, Mr. RASOR, Mr. DAVIS.*
23. Elementary Analytical Geometry and Calculus. Three credit hours. *Third term. M., W., F., at 9, 11, and 1. Prerequisite, course 22. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors SWARTZEL, KUHN, CODDINGTON, Mr. RASOR, Mr. DAVIS.*
24. Problems on all Past Work. One credit hour. *Three terms. F., at 10. Mr. RASOR.*
28. Analytical Geometry and Calculus. Three credit hours. *Three terms. Prerequisite, courses 21, 22, 23, or 31, 32, 33. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors SWARTZEL, KUHN, Mr. RASOR.*
31. College Algebra. Five credit hours. *First term. M., Tu., W., Th., F., at 8, 9, 11, 1 and 2. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors KUHN, CODDINGTON, Mr. RASOR, Mr. DAVIS.*
32. Plane Trigonometry. Five credit hours. *Second Term. M., Tu., W., Th., F., at 8, 9, 11, 1 and 2. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors KUHN, CODDINGTON, Mr. RASOR, Mr. DAVIS.*

33. Analytical Geometry. Five credit hours. *Third term. M., Tu., W., Th., F., at 8, 9, 11, 1 and 2.* Prerequisite, course 22 or 32. Professor BOHANNAN, Associate Professor McCOARD, Assistant Professors KUHN, CODDINGTON, Mr. RASOR, Mr. DAVIS.
- 41, 42, 43. Calculus. Five credit hours. *Three terms. M., Tu., W., Th., F., at 8, 11 and 1.* Prerequisite, courses 21, 22, 23, or 31, 32, 33. Professor BOHANNAN, Associate Professors McCOARD and BOYD, Assistant Professors SWARTZEL, KUHN, CODDINGTON.
- 71, 72, 73. Mechanics. Five credit hours. *Three terms. M., Tu., W., Th., F., at 8, 9, and 11.* Prerequisite, courses 41, 42, 43. Associate Professor BOYD, Assistant Professor KUHN.
25. Higher Mathematics. From one to ten hours a week may be selected from the following courses: (a) Determinants. (b) Modern Geometry. (c) Modern Higher Algebra. (d) Advanced Analytical Geometry. (e) Advanced Calculus. (f) Space Analytics. (g) Differential Equations. (h) Theory of Equations. (i) Higher Plane Curves. (j) Groups. (k) General Function Theory. (l) Elliptic Functions. (m) Potential Function. (n) Spherical Harmonics. (o) Mathematical Electricity. (p) Mathematical Optics. (q) General Mathematical Physics. (r) Higher Geodesy. (s) Infinite Series and Products. (t) The Teaching of Elementary Mathematics.

Mechanical Engineering

(Office, Room 9, Hayes Hall.)

PROFESSOR MAGRUDER.

34. Thermodynamics. Five credit terms. *Second term; W. Tu., W., Th., F., at 8.* Open only by permission of instructor. Professor MAGRUDER.

Metallurgy and Mineralogy

(Office, Townshend Hall.)

PROFESSOR N. W. LORD.

2. Mineralogy. Three credit hours. *Third term. M., W., F., at 11.* Prerequisite, mathematics 21, 22, 23, or equivalent, and chemistry 1. Professor LORD.
3. Determinative Mineralogy. Five credit hours. *Third term. M., Tu., W., 1 to 4.* Prerequisite, course 2. Professor LORD.
5. Metallurgical Laboratory. Five credit hours. *Three terms. W., Th., F., 1 to 4.* Prerequisite, physics 2 and two years of chemistry. Professor LORD.

Military Science and Tactics

(Office, The Armory.)

CAPTAIN GEORGE L. CONVERSE, U. S. A.

The Military Department is open five days during each week of each term.

1. Military Drill. Four times a week from the opening of college till the Thanksgiving vacation; four times a week from Thanksgiving till April first; four times a week till the close of the school year. Required of all able-bodied male students during first and second years of their course. *M., Tu., W., Th., at 4.*
2. Tactics. Lectures and recitations. Once a week. *Second term.*
3. Art of War. Lectures and recitations. Once a week. *Second term.*

Philosophy

(Office, Room 33, University Hall.)

PROFESSOR SCOTT, ASSISTANT PROFESSOR HAINES, DR. DAVIES.

UNDERGRADUATE COURSES

18. General Psychology. Three credit hours. *Section I, first and second terms. M., W., F., at 11. Professor SCOTT. Section II, second and third terms. M., W., F., at 9. Assistant Professor HAINES.*
19. Logic. Three credit hours. *Section I, third term. M., W., F., at 11. Professor SCOTT. Section II, first term. M., W., F., at 9. Assistant Professor HAINES.*
20. Ethics. Three credit hours. *Third term. M., W., F., at 3. Professor SCOTT.*
21. History of Modern Philosophy. Three credit hours. *Second and third terms. M., W., F., at 8. Dr. DAVIES.*
- 22a. History of Ancient Philosophy. Three credit hours. *First term. M., W., F., at 8. Dr. DAVIES.*
- 22b. History of Mediaeval Philosophy. Three credit hours. *Second term. M., W., F., at 9. Dr. DAVIES.*
29. Introduction to Experimental Psychology. Three credit hours. *Three terms. Tu., Th., 1 to 3. Lecture, Th., at 1. Prerequisite, Philosophy 18, or Zoology 21. Assistant Professor HAINES.*

UNDERGRADUATE AND GRADUATE COURSES

23. Conspectus of Philosophy. Three credit hours. *First term. M., W., F., at 2. Prerequisite, courses 18 and 19, or courses 20, 21. Professor SCOTT.*

24. Theory of Knowledge. Three credit hours. *Second term. M., W., F., at 2.* Prerequisite, courses 18 and 19 or courses 20, 21. Professor SCOTT.
25. Metaphysics. Three credit hours. *Third term. M., W., F., at 2.* Prerequisite, courses 18 and 19 or 20, or course 21.
26. Advanced Psychology. Two credit hours. *Three terms. Tu., Th., at 9.* Prerequisite, course 18. Dr. DAVIES.
27. Philosophy of Science. Two credit hours. *Three terms. Tu., Th., at 2.* Prerequisite, courses 18 and 19 or 20, or course 21. Professor SCOTT.
28. Philosophy of Religion. Two credit hours. *Three terms. Tu., Th., at 2.* Prerequisite, courses 18 and 19 or 20, or course 21. Professor SCOTT.
30. Research Work in Experimental Psychology. Two credit hours. *Three terms.* Prerequisite, courses 18 and 19. Assistant Professor HAINES.
31. Plato. Two credit hours. *Three terms. Tu., Th., at 3.* Prerequisite, courses 21 and 22. Dr. DAVIES.
32. Aristotle. Two credit hours. *Three terms. Tu., Th., at 3.* Prerequisite, courses 21 and 22. Dr. DAVIES.
33. Descartes and Spinoza. Three credit hours. *First term. M., W., F., at 10.* Prerequisite, course 21. Dr. DAVIES.
34. Locke and Lubritz. Three credit hours. *Second term. M., Th., F., at 10.* Prerequisite, course 2. Dr. DAVIES.
35. Berkeley, Hume and Reid. Three credit hours. *Third term. M., Th., F., at 10.* Prerequisite, course 21. Dr. DAVIES.
36. Kant, Fichte, Schilling, Hegel. Three credit hours. *Three terms. M., Th., F., at 10.* Prerequisite, course 21. Dr. DAVIES.
37. Later German Philosophy. Three credit hours. *Three terms. M., Th., F., at 10.* Prerequisite, course 21. Assistant Professor HAINES.
38. Recent and Current Philosophy. Three credit hours. *Three terms. M., Th., F., at 10.* Prerequisite, course 21. Assistant Professor HAINES.
39. Psychological Seminary. Two credit hours. *Three terms.* Prerequisite, courses 18 and 26. Assistant Professor HAINES.
40. Ethical Seminary. Two credit hours. *Three terms.* Prerequisite, courses 20 and 44. Professor SCOTT.
41. Philosophical Seminary. Two credit hours. *Three terms.* Prerequisite, courses 23, 24, 25. Dr. DAVIES.
42. Comparative Psychology. Two credit hours. *Three terms. Tu., Th., at 8.* Prerequisite, course 18. Assistant Professor HAINES.
43. Scientific Method. Two credit hours. *Three terms. Tu., Th., at 9.* Prerequisite, course 19 and an intimate acquaintance with some one science. Assistant Professor HAINES.

44. Advanced Ethics. Two credit hours. *Three terms. Tu., Th., at 3.* Prerequisite, courses 18 and 20. Professor SCOTT.
45. Esthetics. Two credit hours. *Three terms.* Dr. DAVIES.
- *46. Abnormal Psychology. Two credit hours. *Tu., Th., at 8.* Prerequisite, course 18. Assistant Professor HAINES.

PHYSICAL EDUCATION

(Office, The Armory.)

Theoretical and practical work in the gymnasium during two years of each student's course.

Physics

(Office, Room 13, University Hall.)

PROFESSOR THOMAS, PROFESSOR COLE, ASSISTANT PROFESSOR KESTER,[†] ASSISTANT PROFESSOR EARHART, MR. ———.

2. Mechanics and Heat, Electricity and Magnetism, Sound and Light. Three credit hours. *Three terms. M., W., F., at 9.* Prerequisite, Mathematics 21, 22, 23 or 31, 32, 33. Professor THOMAS.
3. Problems. Two credit hours. *Three terms. Tu., Th., at 9.* Prerequisite, Mathematics 21, 22, 23 or 31, 32, 33. Professor THOMAS, Assistant Professor EARHART, Mr. ———.
4. Electricity and Magnetism. Three credit hours. *First term. M., Tu., Th., at 10.* Professor THOMAS.
11. General Physics. Three credit hours. *Three terms. Lecture, W., at 11 or 2; laboratory, Tu., Th., 8 to 10 or Th., F., 2 to 4.* Professor COLE.
12. Laboratory. Three to five credit hours. *Three terms. M., Tu., W., 1 to 4.* Prerequisite, course 2 (or may accompany course 2.) Professor COLE.

II. FOR ADVANCED UNDERGRADUATES AND GRADUATES.

13. Advanced Laboratory. Three to five credit hours. *Three terms.* Prerequisite, courses 2 or 11 and course 12. Professor THOMAS, Professor COLE, Assistant Professor EARHART.
14. Theoretical Physics. (a) Advanced Light or (b) Radiation, or (c) Theory of Heat, (e) Evolution of Experimental Physics. Three to five credit hours. *Three terms.* Prerequisite, course 2 and Calculus. Professor THOMAS, Professor COLE.
16. Physical Seminary. One credit hour. *Three terms.* Prerequisite, a year of college work in physics. Professor COLE.

*Not given until 1905-06.

[†]Absent on leave.

III. FOR GRADUATES.

15. Research Laboratory. Three to five credit hours. *Three terms.* Prerequisite, two years of laboratory work in physics. Professor THOMAS, Professor COLE.

PHYSIOLOGY

(See Anatomy and Physiology.)

POLITICAL ECONOMY

(See Economics and Sociology.)

POLITICAL SCIENCE

(See American History and Political Science.)

RHETORIC AND ENGLISH LANGUAGE.

(See English.)

Romance Languages and Literatures

(Office, Room 35, University Hall.)

PROFESSOR BOWEN, ASSOCIATE PROFESSOR BRUCE, ASSISTANT PROFESSOR INGRAHAM.

I. FRENCH

1. Elementary French. Four credit hours. *Three terms. Section I, M., Tu., Th., F., at 10.* Assistant Professor INGRAHAM. *Section II, M., Tu., Th., F., at 11.* Associate Professor BRUCE. *Section III, Tu., W., Th., F., at 2.* Associate Professor BRUCE. *Section IV, Tu., W., Th., F., at 3.* Professor BOWEN.
2. Modern French Literature. Four credit hours. *Three terms.* Prerequisite, course 1 or equivalent. *Section I, M., Tu., Th., F., at 10.* Associate Professor BRUCE. *Section II, M., Tu., Th., F., at 11.* Professor BOWEN. *Section III, first and second terms. M., Tu., W., Th., at 9.* Assistant Professor INGRAHAM.
3. Science Reading. Four credit hours. *Third term, M., Tu., W., Th., at 9.* Prerequisite, course 2, first two terms, or equivalent. Assistant Professor INGRAHAM.
4. French Comedy of the Seventeenth Century. Three credit hours. *First term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.
5. French Tragedy. Three credit hours. *Second Term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.
6. Seventeenth Century Prose. Three credit hours. *Third term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.
7. Advanced Prose Composition. One credit hour. *Three terms. Tu., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.

- *8. Literary Criticism in France. Two credit hours. *First term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- *9. Recent French Prose. Two credit hours. *Second term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- *10. Practice in Speaking and Writing French—Based on Daudet's Stories. Two credit hours. *Third term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- *11. French Travel-Writers. Two credit hours. *First term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- *12. Eighteenth Century Prose. Two credit hours. *Second term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- *13. Advanced Conversational Practice—Based on Stories of Coppeé and Maupassant. Two credit hours. *Third term. Tu., Th., at 9.* Prerequisite, courses 1 and 2. Associate Professor BRUCE.
- 14. French Seminary A. Two credit hours. *Three terms. Tu., Th., at 2.* Prerequisite, courses 1, 2, 4, 5, 6 and 7 or an equivalent. Professor BOWEN.
- *15. French Seminary B. Two credit hours. *Three terms. Tu., Th., at 2.* Prerequisite, course 1, 2, 4, 5, 6 and 7 or an equivalent. Professor BOWEN.
- *16. French Comedy of the Eighteenth Century. Three credit hours. *First term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.
- *17. French Society in the Seventeenth Century. Three credit hours. *Second term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.
- *18. Precursors of French Romanticism. Three credit hours. *Third term. M., Th., F., at 10.* Prerequisite, courses 1 and 2. Professor BOWEN.

II. ITALIAN

- 1. Elementary Italian. Two credit hours. *Three terms. Tu., Th., at 9.* Associate Professor BRUCE.
- *2. Advanced Italian. Two credit hours. *Three terms. Tu., Th., at 9.* Associate Professor BRUCE.

III. SPANISH

- 1. Elementary Spanish. Four credit hours. *Three terms. Section I, M., Tu., Th., F., at 11; Section II, Tu., W., Th., F., at 3.* Assistant Professor INGRAHAM.
- *2. Advanced Spanish. Two credit hours. *Three terms. Tu., Th., at 3.* Professor BOWEN.

*Not given until 1905-6.

SOCIOLOGY

(See Economics and Sociology.)

SPANISH

(See Romance Languages.)

Zoology and Entomology

Office, Room 3, Biological Hall.)

PROFESSOR OSBORN, ASSOCIATE PROFESSOR HINE, ASSOCIATE PROFESSOR LAND-
ACRE, MR. SANDERS, MR. SURFACE.

1. Invertebrate and Vertebrate. Three credit hours. *Three terms. Lecture, Tu., Th., at 8, or M., F., at 10. Laboratory, Section I, F., 1 to 4. Section II, Th., 1 to 4. Section III, W., 1 to 4.* Professor OSBORN, Associate Professor LANDACRE.
2. Comparative Anatomy of Vertebrates. Three or five credit hours. *Three terms. Quiz, W., at 1. Laboratory, W., Th., F., 1 to 4.* Prerequisite, course 1 or equivalent. Associate Professor LANDACRE.
12. Gross Anatomy of the Frog. Three or five credit hours. *First term. Laboratory, W., Th., F., 1 to 4.* Prerequisite, course 1. Associate Professor LANDACRE.
13. Minute Anatomy of the Frog. Three or five credit hours. *Second term. Laboratory, W., Th., F., 1 to 4.* Prerequisite, course 1. Associate Professor LANDACRE.
14. Embryology of the Frog. Three or five credit hours. *Third term. Laboratory, W., Th., F., 1 to 4.* Prerequisite, course 1. Associate Professor LANDACRE.
- 15, 16, 17. Invertebrate Morphology. Three or five credit hours. *Three terms. Lecture, Tu., at 2. Laboratory, M., Tu., W., Th., F., 2 to 4.* Prerequisite, course 1. Professor OSBORN.
18. Invertebrate Embryology. Three or five credit hours. *Three terms. Lecture, Tu., at 2. Laboratory, M., Tu., W., 1 to 4.* Prerequisite, course 1. Professor OSBORN.
19. Vertebrate Embryology: Karyokinesis, etc. Three or five credit hours. *First term. Lecture, M., at 1. Laboratory, M., Tu., W., 1 to 4.* Prerequisite, course 1. Associate Professor LANDACRE.
20. Vertebrate Embryology: Chick and Mammal. Three or five credit hours. *Second and third terms. Lecture, M., at 1. M., Tu., W., 1 to 4.* Prerequisite, courses 1 and 19. Associate Professor LANDACRE.
21. Comparative Neurology. Three to five credit hours. *Three terms. Lecture, Tu., at 1. Laboratory, M., Tu., W., 1 to 4.* Prerequisite, course 1 or equivalent, but is open to advanced students in psychology or pedagogy. Associate Professor LANDACRE.

22. Cytology. Three or five credit hours. *Three terms.* Prerequisite, course 1 and equivalent of 2, or 15, 16, 17. Professor OSBORN.
23. Entomology. Three or five credit hours. *Three terms. Lecture, F., at 1. Laboratory or field work, M., Tu., W., Th., F., 2 to 4.* Prerequisite, course 1. Professor OSBORN.
24. Ornithology. Two credit hours. *Three terms. Lecture, M., at 10. Laboratory, Tu., 9 to 11.* Associate Professor HINE.
25. Research Work. Five or ten credit hours. *Three terms.* Prerequisite, course 1 and the equivalent of 2 or 15, 16, 17, or 19, 20. Professor OSBORN.
26. Seminar. One credit hour. *Three terms. F., at 4.* Professor OSBORN, Associate Professors HINE and LANDACRE.
27. Teachers' Course. Two or three credit hours. *Three terms.* Professor OSBORN, Associate Professor LANDACRE.

Fees and Expenses

GENERAL CHARGES.

All term dues must be paid at the opening of each term as a condition of admission to classes.

INCIDENTAL FEE.—A charge of six dollars a term, eighteen dollars a year, is made against all students, under the head of incidental expense. In the case of former students if this fee is not paid until the second day of the term one dollar will be added, and for each succeeding day of delinquency fifty cents will be added.

TUITION.—Tuition is **free** in the College of Arts, Philosophy and Science.

LABORATORY FEES.

In many of the laboratories students are required to pay fees to cover cost of material used. These are noted in the schedule given below.

In the laboratories of the Department of Chemistry each student is required at the beginning of each term to pay a fixed charge of one dollar and fifty cents for gas and water. First year students in chemistry are also required to make a deposit of five dollars at the beginning of each term at the Chemical Store Room to cover the cost of their laboratory supplies.

The fees charged per term in the laboratories are as follows:

Anatomy and Physiology, 4, 9, 11.....	\$5 00
Bacteriology, 1, 4, 5, 6.....	1 00
Botany, 3, 4, 6, 7, 8, 11, 12, 16, 17, 18, 19, 21, 22, 23.....	2 00
Botany, 24, 25, 27, 29.....	2 00
Chemistry, 1	1 00
Chemistry, 2, 3, 7, 8, 9, 12, 12a, 13, 15, 17, 20, 27, 29, 30b, 32, 33, 34....	1 50
Domestic Science, 1, 2, 3.....	5 00

Drawing, 7	2 00
Electrical Engineering, 9, 11, 4 hours or more.....	7 00
Electrical Engineering, 7, 3 hours or less.....	5 00
Law when elected 5 hours or less, per semester.....	7 50
Metallurgy, 3, 5.....	1 50
Physics, 12, 13, 15, 3 hours, \$5.00; over 3 hours.....	7 00
Zoology and Entomology, 2, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 2 hours, \$2.00; 3 hours, \$3.00; over 3 hours.....	5 00
Zoology and Entomology, 1.....	1 00

LOCKER FEE.

A fee of one dollar a term is required from those who make use of a locker in the gymnasium.

CADET UNIFORMS.

The uniform with which the members of the battalion are required to provide themselves costs (without overcoat) about fourteen dollars. It is quiet in pattern, and is designed to be worn in place of civilian dress.

GRADUATION FEE.

A fee of five dollars, to cover expense of graduation and diploma is required of each person receiving one of the ordinary degrees from the University, and this fee must be paid before the degree is conferred. A like fee of ten dollars is charged to each person receiving one of the higher graduate degrees.

AUDITOR'S FEE.

On presentation to the Bursar of the written consent of the head of a department, and on the payment to the Bursar of an auditor's fee of one dollar, any person engaged in teaching is permitted to attend, in that department, any class or course (not to exceed three hours a week for one-half year) which is announced to be especially for teachers or those intending to teach.

Rooms and Board

There are two dormitories on the University grounds for the use of students. Each occupant is charged by the University a rent of a dollar and a half a term.

The South Dormitory affords unfurnished rooms to such students as desire to board themselves, and thus to reduce their expenses to a minimum. The expense of living in this way is about two dollars per week. Applications for rooms should be made to the President of the University.

The North Dormitory will accommodate more than sixty students. Board, furnished rooms, fuel, light and washing are, at present prices, supplied for about three dollars and twenty-five cents a week. Students will be admitted on special recommendation to the President of the University.



Boarding clubs are also formed in the neighborhood of the University. Furnished rooms are rented at seventy-five cents to one dollar a week for each student, and the cost of table board is two dollars to three dollars a week.

Board with furnished rooms can be obtained in private families, within convenient distances of the University, at rates varying from three and a half dollars to five dollars a week. The ruling rate may be taken as four dollars.

Fellowships

To encourage graduates of this University, and of other similar and approved institutions in this State, to continue their studies and to undertake advanced work leading to the higher degrees, the University authorities have established fellowship in several departments. These demand about one-half of the time of the fellow for laboratory or other similar assistance — as far as possible along the line of his graduate study. The remainder of his time is given to graduate work. The fellowships pay from \$150 to \$300 for the University year. At present there are three such fellowships in English, two each in Botany and in Chemistry, and one each in Economics, Mathematics and Zoology.

Self Support

There is a large amount of work upon the University farm which is assigned to students, preference being given to those who are studying Agriculture. *But the University cannot promise work to all applicants.* Many students find work in private families, in offices, and in various occupations, by means of which they defray a portion of their expenses. A person of ability and energy, who is a master of a trade, or who can do good work of any kind, can generally find employment, but prospective students are cautioned against depending wholly upon such uncertain sources of income.

Students should distinctly understand that where they attempt entire or partial self-support they should lengthen the term of study.

As an accommodation the executive office co-operates as far as possible in this matter. The Y. M. C. A. offers its services in helping young men to secure employment. Very much depends, however, on the individual's power of initiative. Students should not come to the University expecting others to find places for them. They should report to the executive office from time to time as to their needs and their work. This will enable the authorities to be more helpful than otherwise would be possible.